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# China Report

AGRICULTURE

No. 216



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27 July 1982

# CHINA REPORT

## AGRICULTURE

No. 216

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## I. GENERAL INFORMATION

### PRC REGULATIONS ON WATER, SOIL CONSERVATION

OW080101 Beijing XINHUA Domestic Service in Chinese 0032 GMT 7 Jul 82

[Text] Beijing, 7 Jul (XINHUA)--The State Council promulgated the "Regulations Governing the Work of Water and Soil Conservation" on 30 June 1982. The regulations read in full as follows:

#### Chapter I: General Principles

##### Article 1

The prevention and treatment of soil erosion and the protection and rational use of water and soil resources are a fundamental measure to transform hilly, mountainous, windy and sandy areas; harness rivers; reduce the natural disasters of flood, drought and sand blown by the wind; build a good ecological environment and develop agricultural production as well as an important aspect in harnessing the land of our country. To perform water and soil conservation work well, these regulations are hereby laid down.

##### Article 2

The principles guiding the work of water and soil conservation are to lay equal stress on both prevention and treatment, combine harnessing with management, suit measures to local conditions, make overall plans, tackle problems in a comprehensive way, eliminate what is harmful and promote what is beneficial.

##### Article 3

The Ministry of Water Conservancy and Power is in charge of water and soil conservation work throughout the country. A group for coordinating water and soil conservation work throughout the country shall be set up with the Ministry of Water Conservancy and Power as the leading factor and with the participation of the state planning commission, the state economic commission, the Ministry of Agriculture, Animal Husbandry and Fishery and the minister of forestry in order to strengthen the liaison with various departments concerned, regularly study and solve major problems in water and soil conservation work and do this work well. Local people's governments at various levels that are tasked with the prevention and treatment of soil erosion should set up necessary organizations for water and soil conservation according to their specific conditions.

The tasks of water and soil conservation organizations are to carry out the principles, policies and decrees of the state on water and soil conservation; conduct water and soil conservation surveys; make plans for water and soil conservation and organize the implementation of such plans; supervise and check up on water and soil conservation work by the departments concerned; organize and engage in scientific research on water and soil conservation, the training of qualified personnel and propaganda work in this regard; and do a good job in managing and using funds and materials for water and soil conservation.

Various river valley organizations should be responsible for surveying, planning and engaging in scientific research on water and soil conservation in their own valleys and assist and give impetus to the water and soil conservation departments of various provinces, autonomous regions and municipalities directly under the central government in their valleys in performing water and soil conservation work well.

Water and soil conservation, agrotechnical, forestry, water conservancy, farm machinery, clay fertilizer and prairie stations are all dutybound to help local communes and production brigades and teams with water and soil conservation work.

#### Article 4

People's governments at various levels in hilly, mountainous, windy and sandy areas must include water and soil conservation in their plans, strengthen their leadership, make overall plans, organize and coordinate the work of water and soil conservation, conduct propaganda and education, and mobilize the masses to do this work well. Water conservancy, agricultural, forestry, animal husbandry, land reclamation, environmental protection, railway, communications, industrial, mining, power, scientific research and other departments must closely coordinate with each other, divide their work with individual responsibility and perform their water and soil conservation work well. Propaganda and publication departments should make propaganda on water and soil conservation in a planned way, popularize scientific knowledge in this regard and raise cadres' and people's understanding of the harmfulness of soil erosion and the importance of water and soil conservation.

#### Article 5

Under the guidance of overall planning for water and soil conservation by local people's governments, rural communes, production brigades and teams, as well as state farms and state forest and livestock farms should make concrete plans for water and soil conservation according to local natural conditions and the actual needs of the masses in production and livelihood, and organize the implementation of such plans.

#### Article 6

It is necessary to mobilize social forces and rely on the efforts of the masses to prevent and treat soil erosion. The state will give necessary financial and material aid to them and provide key areas with additional aid.

Planning departments at various levels should include water and soil conservation in their economic plans. The special funds allocated by the state for water and soil conservation must be used for this special purpose, not for other purposes. Water and soil conservation and finance departments at various levels should strengthen their management of funds and attach importance to returns on investment.

## Chapter II: Prevention of Soil Erosion

### Article 7

It is forbidden to open up and plant crops on slopes with a gradient of more than 25 degrees. The people's government of provinces, autonomous regions and municipalities directly under the central government may stipulate a gradient of less than 25 degrees based on local terrains, landforms and population density which also forbids the opening of a slope.

### Article 8

It is forbidden to open up wasteland, scoop up sand or cut into a mountain with explosives for quarrying in seriously windy and sandy areas, areas with the danger of a landslide, areas where a mud rock flow is possible, on hillsides along railways, highways, rivers and irrigation ditches and in areas around reservoirs, natural protection areas, scenic areas and places of historic interest, scenic beauty and important cultural heritage.

### Article 9

It is forbidden to reclaim wasteland in Loess hills and gullies as well as plateau gullies on the Loess plateaus. The provinces and autonomous regions concerned should, according to their specific conditions, stipulate areas that it is forbidden to reclaim.

### Article 10

It is strictly forbidden to destroy forests, open up wasteland and reclaim grasslands and slopes for grazing livestock.

### Article 11

In opening up land on slopes with a gradient of less than that which forbids the reclaiming of a slope, a unit or individual must obtain the approval of a people's government at the county level and take measures for water and soil conservation. Violators of this article shall be ordered to return the reclaimed land planted with trees and grass.

In opening up land on slopes with a gradient of less than that which forbids the reclaiming of a slope, state farms must report their plans to higher authorities for approval in accordance with relevant state regulations. The land reclamation plans which they submit to higher authorities for approval must

include implementation plans for water and soil conservation. The state farms should also solicit opinions on their implementation plans from water and soil conservation departments before their land reclamation plans are approved. After their land reclamation plans are approved, the water and soil conservation departments should supervise the implementation of such plans.

#### Article 12

Indiscriminate felling of trees to the damage of water and soil conservation is strictly forbidden. Plans for felling trees in accordance with state regulations that are submitted to higher authorities for approval must include implementation plans for reforestation on slashes and for water and soil conservation. Opinions on the implementation plans should be solicited from water and soil conservation departments before the tree-felling plans are approved. After the tree-felling plans are approved, the water and soil conservation departments should supervise the implementation of such plans.

#### Article 13

In afforesting slopes, weeding and intertilling the land between young trees and replanting hillsides with tea oil and tung trees, it is necessary to take water and soil conservation measures in order to prevent soil erosion.

#### Article 14

In building projects or engaging in production in hilly, mountainous, windy and sandy areas, water conservancy, railway, communications, industrial, mining, power and other departments should minimize damage to landforms and vegetation. In quarrying, digging up clay and scooping up sand which may cause soil erosion, it is essential to take water and soil conservation measures. Discarded clay, rocks, sand, slag and tailings must be properly disposed of and must not be allowed to be dumped into rivers and reservoirs. When a project is completed, the construction unit is responsible for taking vegetation measures and necessary engineering measures to protect water and soil resources in the uncovered areas from which the unit dug and took clay.

Engineering project designs and production plans submitted by various departments for approval must include measures for preventing and controlling soil erosion. Opinions about such measures must be solicited from the department in charge of water and soil conservation work prior to the approval of the designs and plans. After the approval of the designs and plans, the measures must be implemented under the supervision of the said department. Where soil erosion has already appeared, control measures must be taken within a certain time limit. Funds required for soil erosion control should be disbursed from the capital construction investment in the case of capital construction units or from the money set aside for equipment renewal and the streamlining of enterprises or, in the case of production enterprises, from the fund for developing production.

#### Article 15

County{prefecture?} governments in mountainous and hilly areas and in windy and sandy areas should organize the rural communes and production brigades as well as the state-run agricultural, forestry and livestock farms according to local

conditions and in a planned way to close certain mountains and hills for the purpose of averting the erosion of sandy soil, plant trees and grow grass, close certain areas and use other areas as grazing lands on a rotational basis and vigorously build fuel forests and grow fodder grass and green manure crops. Habits such as removing sod, digging up tree saplings [Wa Shu Dou 2177 2885 0351], indiscriminate logging and wanton grazing should be changed in order to protect vegetation.

#### Article 16

County-level people's governments in mountains and hilly areas and in windy and sandy areas should, in accordance with the needs of production plans and water and soil conservation, work out specific measures in order to lead--in a well-organized way--the work of the various sideline production projects of rural communes and production brigades, state-run agricultural, forestry and livestock farms and individuals, such as collecting and growing medicinal herbs, raising tussahs, cultivating edible fungi and mushrooms, making charcoal, bricks and tiles, mining and quarrying. It is necessary to prevent random digging or dumping of earth and rocks, a practice which can destroy vegetation and result in soil erosion.

### Chapter III: Soil Erosion Control

#### Article 17

In controlling soil erosion in mountainous and hilly areas, it is necessary to act in accordance with the local natural conditions, take small river valleys as units for such work, make overall plans, apply diverse methods, concentrate attention and make continued efforts. It is necessary to combine measures concerning plants with engineering measures, work on mountain and hill slopes with work on ditches and water channels, and engineering projects in the fields with farming measures aimed at conserving water and soil. In addition, it is necessary to pay attention to both controlling soil erosion and promoting production by utilizing natural resources, take into consideration both immediate and long-range advantages and strive for practical results.

#### Article 18

As for present arable sloping land, if the slope is above the degree for banning reclamation, it should be treated discriminately according to the different conditions. If local communes and production brigades have relatively few people but large expanses of land, they should actively build their basic fields on flat and less sloping land and do their best to raise the per unit output from such fields, while using the more sloping land for building forests and growing grass instead of farming. If the local communes and production brigades have relatively large numbers of people but small expanses of land and, therefore, find it difficult not to farm on their arable sloping land, it is necessary to set a time limit, according to the degree of slope, for them to build the sloping land into terraced fields or to take other measures to conserve this land's water and soil. As for present arable sloping land where the slope is less than the degree for banning reclamation, it is necessary to take such water and



soil conservation measures as contour farming, contour listing, rotation of grass and field crops and the building of terraced fields in order as to prevent and control the soil erosion.

#### Article 19

Local people's governments should organize the forces of communes, production brigades and the masses to carry out the task of controlling soil erosion by taking into consideration how the agricultural production responsibility system is being carried out and by adopting appropriate measures that are best suited to local conditions.

Communes and production brigades that should cooperate with each other in fulfilling their heavy tasks of controlling soil erosion are required to carry out the principles of voluntary participation and mutual benefit, exchange based on equal value and reasonable responsibilities. After commencement of the soil erosion control project, the task of management, distribution of benefits and use of the newly added farmland should be decided by the participating units through discussion. The ownership of the original land should not be changed.

#### Article 20

Rural communes and production brigades and departments concerned should make all-out efforts to build necessary tree sapling farms and seed production bases so as to supply grass seeds and tree saplings required for controlling soil erosion.

#### Article 21

Any unit or individual who has caused soil erosion because of land reclamation, sideline production projects, mining, road construction, building of water conservancy or hydroelectric power projects, logging or other production and construction projects should be responsible for solving the soil erosion problem. The local people's government has the power to supervise, speed up, inspect and set a time limit for the work in this regard.

#### Article 22

All localities should fulfill the responsibility for the management of water and soil conservation facilities (including engineering projects as well as trees and grass). All localities should strengthen the management and maintenance of these facilities, increase their benefits and give full play to their role in conserving water and soil.

In accordance with the state of water and soil conservation facilities, rural communes and production brigades should fulfill the responsibility for their management and maintenance. For some water and soil conservation facilities, pledges for their management and maintenance may be drawn up and necessary management and maintenance organizations may be formed. Conservancy, railway, communication, industry and mining departments, as well as state-run agricultural, forestry and livestock farms, should set up management and maintenance

in situations of natural disasters, permitted to take care of the management and conservation of water and soil conservation facilities within the scope of their jurisdiction.

#### Article 23

No unit or individual is allowed to encroach upon or sabotage water and soil conservation facilities or experimental areas, instruments or equipment for water and soil conservation.

#### Article 24

In the windy and sandy areas of northeastern, northern and northwestern China, the local people's governments should, under the state's unified planning, organize rural communes and production brigades as well as state-run agricultural, forestry and livestock farms to build windbreaks and to concentrate on growing trees over large tracts of land in order to protect against wind and avoid the erosion of sandy soil. In other windy and sandy areas, the local people's governments should also work out plans and take effective measures to prevent the harmful effects of wind and sand.

#### Article 25

With regard to grasslands, grassy mountains and grassy slopes which have become eroded and degenerated, it is necessary to adjust the number of livestock grazing there in a planned way based on the livestock accommodating capacity of those areas. It is also necessary to apply the measures of closing certain areas and using other areas for grazing on a rotational basis, sowing fodder grass and building windbreaks in an effort to restore vegetation and improve the conditions of the grazing land. In areas with serious soil erosion, active efforts should be made to grow fodder grass, promote the method of raising livestock in confined areas and change the practice of open field grazing in order to restore vegetation.

#### Article 26

In areas where the people have the habits of reclaiming mountain land for farming [Dao Shan Luo Sheng 0227 1472 6544 4429] and cutting or burning off grass and trees to do farming [Dao Geng Hao Zhong 0430 5087 3499 4429], the local people's governments should strengthen propaganda and education, assist in building back farmland, popularize agricultural science and technology and create favorable conditions for changing the farming habits step-by-step in the interest of water and soil conservation.

Land not yet used in rotational farming should be promptly planted in fodder trees or other shrubs in order to increase the vegetation on the land.



## Chapter IV: Education and Scientific Research

### Article 27

Education, water conservancy, agricultural and forestry departments should sponsor a specialty class or course on water and soil conservation at related institutions of higher learning. Provinces and autonomous regions with serious soil erosion problems may establish secondary water and soil conservation schools or set up a water and soil conservation speciality class or course at secondary water conservancy, agricultural or forestry vocational schools for the purpose of vigorously training scientific and technical workers in this field. Relevant courses at primary and middle schools should contain something about water and soil conservation.

### Article 28

The Chinese Academy of Sciences, the departments of water conservancy, agricultural and forestry research, the water and soil conservation departments of provinces, autonomous regions and provincial level municipalities and the river basin management organizations should strengthen leadership over their subordinate scientific research units which handle water and soil conservation. They should seriously conduct scientific research on water and soil conservation and timely summarize and popularize the results of this research.

Scientific research on water and soil conservation must be conducted in close connection with reality in order to serve the prevention of soil erosion and the development of production, while research is conducted on major practical techniques for water and soil conservation, it is also necessary to do intensive research on basic theories and relevant social and economic problems in order to produce scientific data for preventing soil erosion.

## Chapter V: Rewards and Punishment

### Article 29

Organizations or individuals that perform any of the following advanced deeds shall be commended and rewarded according to their accomplishments by the people's governments at various levels:

1. Making outstanding achievements in the prevention of soil erosion or in the management and maintenance of water and soil conservation facilities;
2. Persistently doing fast and good repairs of soil erosion and performing water and soil conservation with remarkable economic results for a long time;
3. Achieving noticeable achievements in actively changing the habit of extensive cultivation, conserving water and soil and developing agricultural, forestry and animal husbandry productions;
4. Making fairly large inventions, innovations or other contributions in the science and technology of water and soil conservation;

5. Achieving remarkable successes in the research, education, publicity and popularization and management of water and soil conservation science;
6. Making contributions in the struggle against the sabotaging of water and soil conservation; and
7. Doing water and soil conservation work at the grassroots level for more than 15 years with enthusiasm and outstanding performance.

#### Article 30

Organizations or individuals that commit any of the following violations of these regulations should be held responsible for compensating for the loss; the responsible persons of the organization or the individual violators should be handled with disciplinary sanctions; and investigations should be conducted on those who commit crimes in order to affix the responsibility for the crimes:

1. Reclaiming wasteland in violation of articles 7, 8, 9, 10 and 11 or refusing to follow water and soil conservation measures and thus causing serious consequences when reclaiming land on slopes which are officially open to reclamation;
2. Refusing to reforest slashes or prevent soil erosion in violation of articles 12 and 13 and thus causing serious soil erosion;
3. Refusing to follow water and soil conservation measures in violation of article 14 and thus causing damages due to soil erosion;
4. Wantonly excavating or dumping earth and stone or destroying vegetation when undertaking sideline production and thus causing damages due to soil erosion; and
5. Seizing or destroying water and soil conservation facilities, experimental spots, instruments and equipment in violation of article 23.

#### Article 31

All organizations and persons have the right to report to authorities or file charges against those who violate these regulations. The reported or accused organizations or individuals shall be punished according to law if they take reprisals.

#### Chapter VI: Supplementary articles

#### Article 32

The people's governments of various provinces, autonomous regions and provincial level municipalities may formulate detailed rules and regulations based on these regulations.

#### Article 33

These regulations come into force upon promulgation.

CSO: 4007/463

TIPS PROVIDED FOR GROWING NEW CORN VARIETY

Beijing ZHONGGUO NONGMIN BAO in Chinese 13 May 82 p 4

[Article: "Early Maturing Corn, 'Jingzao No 7'"]

[Text] "Jingzao No 7" is a single cross variety of corn bred by the Beijing Municipal Academy of Science's Crop Institute. Its female parent was Huangzao 4 and its male parent was Luoxi 3. It is characterized by early maturation, high yields, and resistance to disease. Since 1979 it has been promoted for cultivation throughout the country over an accumulated more than 4 million mu, for a 450 million jin increase in grain output. This year it has been made a major project for promotion throughout the country.

Jingzao No 7's growing season is about 95 days, making it suitable for sowing in the summer or planted in spring following the wheat harvest on the northern part of the North China Plain. He'nan and Shandong are now test planting it for promotion, and a certain acreage has also been devoted to it in Sichuan and Hunan. It may very possibly become a wetland rotational crop in the mid and lower reaches of the Chang Jiang, and a variety with prospects for changing the farming system there. When sown in spring in cold areas, it is prone to development of head smut, requiring that disease prevention measures such as late sowing and mixing of seeds in pesticides be taken.

Jingzao No 7's main characteristics are compactness of plant shapes, and an upward tilt of middle and upper leaves that permits close planting. Its hollow stalk rate is very low, and its double ear rate may reach as much as 10 to 20 percent. Yields average 600 to 700 jin per mu, the maximum being 1,300 jin or so. Yields from 59 high-yield demonstration fields in the Beijing suburbs in 1981 averaged 1,012.5 jin per mu. Jinzhuang Production Brigade in Gaocheng County, Hebei Province harvested average yields of 1,120 jin per mu from 120 mu.

Other characteristics of Jingzao No 7 are as follows: Resistant to large and small leaf spot; tolerates waterlogging and is drought resistant; has fair'y wide adaptability. Kernels are almost hard, and both quality and taste are rather good. Plants do not prematurely deteriorate during the late stages of development, and at harvest time between 3,000 and 4,000 jin per mu of fresh stalks and leaves may be taken. For both parent pairs the inbred line shape characteristics are apparent. Plant colonies readily

differentiate, making for ease in getting rid of mongrels to preserve purity. Additionally, the leaves of the female parent inbred line, Huangzao 4, stick up, and its double earing rate is very high. Actual density of plants is 5,000 to 5,500 per mu and seed production stands around 300 jin per mu, making for rapid promotion of this variety to cultivation.

The growing of Jingzao No 7 requires mastery of three key techniques:

1. Early sowing. Jingzao No 7's leaves total 22 in number and it requires cumulative temperatures of from 2,350 to 2,400°C during its growing season. When it is fully ripe, the per 1000 weight of kernels is more than 300 grams. However, because it is frequently planted late in production, and unable to ripen normally before fall planting begins, its per 1000 grain weight is only about 250 grams. Thus, a potential for increased yields of more than 100 jin per mu exists. Consequently, efforts should be made to plant early to assure that there will be plenty of time for kernels to be in-the-milk during the late stage. When grown during the summer in the Beijing-Tianjin area, it should be planted no later than 24 June.
2. Suitable close planting. When grown in soils of moderate to high fertility, seedlings should best be thinned to 4,100 - 4,300 per mu for an actual harvest of 3,800 - 4,000 stalks.
3. Increased fertilization. Summer corn has a short growing season. It grows rapidly; yields are high; and it has to absorb greater amounts of nutrients. Fields that produce 700 - 800 jin per mu generally require 80 - 100 jin per mu of ammonium carbonate, fertilization being done twice, after the thinning of seedlings and during the time of full flowering, following the principle of "heavy application first and light application later." For high yield fields producing upwards of 1,000 jin per mu, fertilization with nitrogen should be increased to 120 - 150 jin per mu.

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## NEW PROGRESS IN AGRICULTURAL ZONING IN FUJIAN PROVINCE

Fuzhou FUJIAN RIBAO in Chinese 10 Apr 82 p 3

[Article by FUJIAN RIBAO correspondent: "Agricultural Zoning in Our Province Made New Progress"]

[Text] Resource survey and agricultural zoning in our province made new progress last year. By now, 30 counties, or 43 percent of all the counties and municipalities in the province, have begun these tasks, and five of them--Putian, Shouning, Changding, Shaxian and Shunchang--have already completed or basically completed them.

Last year, thanks to the attention of the provincial, prefectural and county leading departments and the efforts of the broad masses of scientific and technical personnel, the work of agricultural resource survey and agricultural zoning in our province has developed from exploration in a few selected counties to experiments in many far-flung points. There are now experimental counties in all nine prefectures and municipalities. All these counties have selected a large number of cadres and agricultural scientists and technicians for training backbone elements in technology. They were organized into specialized investigation groups for agriculture, forestry, animal husbandry, fishery, meteorology, water conservation, farm machinery, hydrology, geology, and enterprises run by communes and production brigades. They visited the mountainous and hilly regions, the plains and coastal areas to investigate and ascertain the availability of natural resources. In Putian County, it was discovered during the investigation that more than 220,000 mu of barren hills have not yet been utilized; that more than 120,000 mu of shallow sea and beaches could be used for breeding purposes; and that this county had favorable locations for growing sugarcane and the three famous fruits (longan, litchie and loquat). Instead of worrying about the difficulty of developing production in view of the scarcity of land and the large population, as they did for a long time in the past, the broad masses of cadres and people can now see the bright prospects for developing the mountainous and sea areas. In Shouning County, it was discovered that there were rich resources in the form of wild peaches, which, if properly attended to, could yield 200,000-300,000 dan of fresh fruits and become a source of good income.

Through the survey on agricultural resources and agricultural zoning, many localities are now able to direct their agricultural production purposefully instead of blindly, and have organized the communes and production brigades to turn their attention to the mountains and the sea.

## BRIEFS

FLOWER-GROWING COMMUNE--Some educated young people in (Yongfu) commune of Zhangping County, a famous flower-growing village in Fujian province, have been praised by the leading cadres of the Fujian Provincial Party Committee for their success in growing flowers and cultivating precious flower varieties. Their products are sold in 16 provinces and cities in China. Xiang Nan, first secretary of the Fujian Provincial Party Committee, visited (Yongfu) commune on 14 June. He said to prefectural, county and commune cadres: (Yongfu) is a good place. It is necessary to do good planning and continue to develop flower production. [Excerpts] [OW050931 Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 1 Jul 82]

CS0: 4007/463

BRIEFS

COUNTY LIVESTOCK--Xiahe County, Gansu Province, achieved good results in spring livestock production. Now the number of livestock production totals 1.01 million head. All of the 270,000 head of newborn lambs and calves are growing well. [SK052258 Lanzhou Gansu Provincial Service in Mandarin 1125 GMT 4 Jul 82]

GRASS PLANTING MEETING--The Gansu Provincial animal husbandry and agricultural departments recently held a meeting in Tongwei County on planting grass in dry areas in the central part of the province. The meeting contended that planting grass and raising animals in dry areas in the province is the best way to fertilize the soil to promote bumper harvest in agriculture and animal husbandry. Attending the meeting were responsible comrades of 18 counties which have dry lands and provincial and prefectural pertinent departments. They visited some production team grasslands and exchanged experiences in grass planting. [SK030730 Lanzhou Gansu Provincial Service in Mandarin 1125 GMT 2 Jul 82]

CSO: 4007/463



RAPID PROGRESS OF WHEAT-SOWING REPORTED IN HEILONGJIANG

Harbin HEILONGJIANG RIBAO in Chinese 12 Apr 82 p 1

[Article by HEILONGJIANG RIBAO correspondent: "Wheat-sowing in Our Province More Than Half Completed"]

[Text] Because of the fine weather in various parts of the province in the past several days, wheat-sowing has been carried out at the rate of 600,000 mu each day. By 9 April, 15,600,000 mu, more than one-half of the total planned acreage, or 3,770,000 mu more than the acreage in the same period last year, had already been sown to wheat.

There was serious waterlogging in the eastern part of the province this spring. All farms and production teams carried out sowing on a crash basis and won the initiative. All units in the wheat producing areas of the west and the north increased their sowing speed by preparing the farmland and attending to the problem of moisture simultaneously in the effort to achieve a high yield. Throughout the province, some 4.8 million mu of land had been leveled and thoroughly raked before the actual sowing. In the two wheat areas in the west and the north, sowing is now in the peak period and the rate of progress is faster than in past years. It is anticipated that by 20 April, or thereabout, more than 90 percent of the work will be completed.

The farmland is now full of moisture everywhere. While sowing in the hilly areas on a crash basis, people in all wheat growing areas are continuing to prepare the land by turning over the top soil or by breaking down the ridges as a means of dissipating the moisture, in an effort to plant more wheat in the lowland. The relevant departments directly under the province are supplying more seeds for the late crop to the farms and production teams where waterlogging is serious, so that they can carry out their sowing at a later stage.

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CSO: 4007/419



SYSTEMS OF OWNERSHIP IN HEILONGJIANG RECLAMATION AREAS DISCUSSED

Harbin HEILONGJIANG RIBAO in Chinese 12 Apr 82 p 1

[Article by correspondent: "Reclamation Area Economy Developing in the Direction of a Diversified Ownership System"]

[Text] The reclamation area economy in our province is now gradually developing in the direction of a diversified ownership system. At present, there are 1,457 collectively-owned (production team) enterprises with some 110,000 workers and staff members in the reclamation areas, and the number of households supplying individual laborers has increased to more than 3,000.

These collective and individual economies are guided by state planning and subjected to the relevant state policies and rulings, and form an important component of as well as a necessary supplement to the reclamation area economy. These collective and individual economic units are mainly engaged in economic diversification, social services and small-scale processing of agricultural and animal products. Some of these activities take the form of independent management; others are integrated into contract with state farms and state pastures for cattle raising or for planting cash crops. Their forms of operation are many and varied, with wide adaptability.

In the past, the task of providing jobs for the sons and daughters of the workers was undertaken exclusively by the state. With the universal popularization of the system of production responsibility in various forms, the intensified enterprise reorganization, and organization of production according to a fixed number of workers and fixed quotas, such exclusive undertaking is no longer possible. Furthermore, the number of senior and junior secondary school graduates is continuing to increase. The emergence of collective and individual economies has opened a new avenue of job opportunities. Up to now, the collectively-owned enterprises have accommodated more than 27,200 sons and daughters of the workers, or 35.9 percent of the total number of job-awaiting youths. Reform of the economic structure with a single system of ownership has also provided favorable conditions for changing the system of a single form of business operation and for promoting the all-round development of economic diversification. Active development of collective economy in No 8510 Farm on the basis of local natural resources has not only provided job opportunities for 771 unemployed youths in the farm, but also enabled them to undertake more than

20 production projects which yielded a total output value of 650,000 yuan last year. The albumen powder fodder factory under the industrial company of No 93 Farm Administration Bureau has only 61 workers and staff members, but is capable of producing 2,260 tons of compound fodder each year with grass, bean cakes and chaff. Its product is well received by the consumers and is now sold outside the province. The collective and individual economic units engaged in commerce, food and drink service, or repairing and assembling are now filling the gaps left by state-run commerce.

These changes in the economic structure of reclamation areas deserve our attention. Wang Zhenyang [3769 2182 2254], party committee secretary and chief of the provincial General Farm Administration Bureau to the correspondent: "If all people in the reclamation areas are directing their efforts to state-run enterprises, the scope of their activities will become increasingly small, until finally they cocoon themselves like silkworms. There should be without exception a multi-level economy in all reclamation areas. We must pay simultaneous attention to state, collective and to a certain extent individual economies in order that there can be a broader scope for the development of the reclamation areas and greater vitality for the economy."

9411

CSO: 4007/419

RESPONSIBILITY SYSTEM EFFECTIVE IN HEILONGJIANG COUNTRYSIDE

Harbin HEILONGJIANG RIBAO in Chinese 11 Apr 82 p 1

[Article by HEILONGJIANG RIBAO correspondent: "Responsibility System in the Province More Effective This Year--Provincial Rural Work Department Comments on Situation After Introduction of Responsibility System"]

[Text] Commenting on the situation in the countryside after the introduction of the responsibility system recently, the provincial rural work department was of the opinion that the enforcement of this system this year should be more effective than it was last year, and that the trend of its development is healthy. At present, the all-around improvement of this system should be continued so that it could provide a more powerful impetus to the smooth progress of spring farming and production throughout the year.

By now, more than 90 percent of all production teams in the provinces have adopted various forms of responsibility systems. Compared with last year, it has now the following salient features: 1) The number of production teams adopting various forms of output responsibility system has been greatly increased, and these production teams account for 75 percent of the total number of production teams, an increase of 40 percent over last year. The proportion of those adopting the system of short-term contracts has dropped from 50 percent to 25 percent. More than one-half of all production teams have adopted the system of linking output with individual labor. In the fairly highly mechanized wheat and bean producing areas and in some production brigades conducting experiments in mechanization, including the farm machinery teams, there has been great development in various forms of output responsibility. According to statistics in the three prefectures of Heihe, Hejiang and Nianjiang, 44.6 percent of all farm machinery teams have adopted the system of output responsibility. 2) The substance of the responsibility system is now more comprehensive. This year, all localities have drawn their lessons from last year's experiences and are able to handle the combination of unified control, specialized skill and contracting more rationally. Planting plans, machinery, trucks, horses, major production expenses, farmland construction and the distribution of products were brought under unified control as they should be. In the method of contracting, there should generally be specialized skill before responsibility. All specialized

jobs, such as those relating to farm machinery, farm animals, fertilizer accumulation, forestry, animal husbandry, sideline production, fishery and industry, should be contracted to persons with specialized skill. In handling the relationships of interests among the state, the collective and the individuals, the production teams had some problems last year, such as quotas being set too low, the free disposal of products, and improper ways of reward and punishment. This year, measures have been taken for improvement in these respects. 3) The responsibility system is more complete. Formerly, people thought that certain tasks, such as animal raising, financial management, agrotechnology, irrigation from wells with motor-driven pumps, logistic support, enterprises run by communes and production brigades and so forth might create problems for the responsibility system. This year, the responsibility system has been duly improved to handle these tasks. The contract system between science and technology on the one hand and production on the other has been greatly developed, and joint undertakings have developed from single to multiple projects. The responsibility system for paddy rice technicians has been popularized throughout the province. In Suihua Prefecture, the number of production teams practicing the system of contracts between science-technology and production is now 17.5 times that of last year. 4) Attention has been paid to the popularization of the contract system. Up to now, more than 30,000 production teams throughout the province have signed some million contracts. In the prefectures of Nianjiang and Suihua, 80 percent of all production teams have signed various types of contracts which are now being systematically reviewed.

However, some urgent problems are waiting to be solved in various localities. 1) The responsibility system is not being enforced in certain communes and production brigades. At present, 40 percent of the production teams have not signed any contract. In some production teams, the cadres only talk about responsibility system and have so far taken no concrete action of any kind to hold the contractor responsible. Some of them have signed short-term contracts, but some of these contracts do not specify any quotas, and there is no system of inspection or control set up. 2) The substance of responsibility system in certain localities is not comprehensive enough. In some production teams, the substance of the responsibility system is neither complete nor elaborate; in others, the proportion of labor power to the number of persons is irrational in dividing responsible plots, because the principle of giving primary consideration to labor power is not followed. Some production teams are only concerned with the commune members, and the production quotas are set too low. Some job responsibility systems for cadres are too complex and rewards are excessive. Some communes and production brigades pay attention only to the system of responsibility for field production but not to the related responsibilities. There are also some production teams which sign contracts without going through the proper procedures. The contents of their contracts are vague, and unified control is nonexistent. 3) In a small number of communes and production brigades, the problems of disregarding mass wishes and imposing "arbitrary uniformity" still exist. In certain production teams, leadership is abandoned and people seem to be on a sit-down strike.

Now that spring farming is forthcoming, all these urgent problems must be solved. First, we must sign proper contracts. This is the key factor in enforcing and stabilizing the responsibility system. Those production teams which have not yet practiced this system should quickly do so through the signing of contracts; those production teams in which the responsibility system has not been finalized should finalize it through the signing of contracts; and those in which the system has already been finalized should also confirm it in the form of contracts. Second, we must carefully review the responsibility system. Before spring sowing, all localities should organize their cadres to visit the communes and production brigades for a general inspection on the enforcement of the responsibility system, with particular stress on its practical enforcement; on the coordination of unified control, specialized skill and contracting; on the correct handling of relationships of interests among the state, the collective and the individuals; and on the contents of signed contracts, in order that whatever is found missing can be made up and whatever problem brought to light can be promptly solved. These measures will further improve the responsibility and contract systems. Third, leadership must be strengthened in setting up the responsibility system, and even more so in its enforcement. Therefore, we must plan our work more actively and scientifically. After all, we must help the basic level cadres learn to organize production through the use of contracts, to manage the collective economy effectively, and to build a modern agricultural base for the all-around development of cash crops and economic diversification, with commercial grain as the main item.

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CSO: 4007/420

## BRIEFS

LIUZHANG BRIGADE COMMENDED--On the eve of the party anniversary, the Xinxiang prefectural CCP Committee issued a notice commending the party branch of Liu-zhuang Brigade in Xinxiang County, famous throughout the country, and 100 other progressive party branches and 296 outstanding party members. The common characteristics of these party branches and members are that they have seriously implemented the line, principles and policies laid down since the third plenary session, upheld the four basic principles, and scored outstanding successes in building socialist material and spiritual civilization. The prefectural CCP Committee calls on the grassroots party branches and party members throughout the prefecture to rapidly whip up an upsurge of comparing themselves with, learning from, catching up with and helping others. They should raise the emulation drive to a new level. [Text] [HK010533 Zhengzhou Henan Provincial Service in Mandarin 1100 GMT 30 Jun 82]

CSO: 4007/463

HUBEI

BRIEFS

COTTON PRODUCTION CONFERENCE--The Hubei Provincial Conference on cotton production which was recently held in Zhijiang County stressed that the key to striving for a bumper cotton harvest this year lies in strengthening middle- and final-stage field management. The conference pointed out that July, August and September are the decisive period for the growth of cotton. The conference demanded that all places do well in tending cotton at the middle and final stages. Field management includes application of manure on cotton, plant protection, combating natural disasters, making unified arrangements and taking grain and cotton production into consideration. [HK060206 Wuhan Hubei Provincial Service in Mandarin 1100 GMT 1 Jul 82]

CSO: 4007/463



BRIEFS

PREFECTURAL SUMMER CROPS--Huaiyin Prefecture, Jiangsu, reaped good harvests from its 6.9 million mu of wheat, barley and naked barley this year, with the total output increasing by some 600 million jin compared with 1981. [OW150035 Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 26 Jun 82]

HYBRID RICE--Jiangsu Province has achieved results in popularizing a hybrid rice. During the last 3 years, the province has planted about 10 million mu to this hybrid rice each year. Last year the crop gave an average yield of more than 800 jin per mu, or some 100 jin above the output of the ordinary variety. This means an increase of some 1 billion jin in the province's total rice production. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 4 Jun 82 OW]

CSO: 4007/463



JIANGXI

BRIEFS

FLOODED COUNTY--By 26 June, the masses in Lean County, Jiangxi Province, saved 60,000 mu of various crops from the flood and repaired more than 600 water conservancy projects of various sizes. In addition, more than 400,000 jin of fine late rice seeds have been obtained by the county. The masses in the county will expand diversified farming operation to make up for the losses in grain crops. The county's financial department has appropriated 160,000 yuan for the repair of water conservancy facilities and bridges. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 28 Jun 82 OW]

CSO: 4007/463

BRIEFS

WHEAT OUTPUT--Bayannur League's 1.85 million mu of wheat is growing well in 1982. This league has expanded its wheat farming acreage by 125,000 mu. The output is expected to increase 10 percent. [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 6 Jul 82 SK]

GRASSLAND SHELTERBELTS--The Xilin Gol League Forestry Bureau in Nei Monggol autonomous region succeeded in the experiment of planting trees in large areas of dry grasslands without any irrigation facilities. The bureau has built in Xianghua Banner 1,821 mu of grassland shelterbelts on 3 different types of soil. Elms, Chinese wolfberry and poplar trees were planted. Their survival rate was 75, 85 and 95 percent, respectively. [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 1 Jul 82 SK]

HERDSMEN'S INCOME--According to a survey of 51 herdsmen households, the average per capita income of herdsmen in 1981 was 315 yuan in Ju Ud League, Nei Monggol, an increase of 74 yuan over 1980. The income of herdsmen from the collective was 151 yuan per capita on the average, an increase of 48 yuan over 1980. The average income from household sideline occupations for each herdsman was 187 yuan, an increase of 34 percent. The average per capita expenditures paid in cash was 250 yuan. [SK070632 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 6 Jul 82]

CSO: 4007/463

WORK CONFERENCE DISCUSSES URBAN WATER PROBLEMS

Jinan DAZHONG RIBAO in Chinese 1 May 82 p 1

[Article: "Devote Attention to Urban Water Use in the Same Way as to Energy. Provincial Government Convenes Work Conference on Urban Water Utilization Throughout the Province. Demands Adherence to a Policy of Simultaneous Development of Resources and Conservation of Flow and Vigorous Solution of Problems in Urban Water Utilization"]

[Text] Recently the Provincial People's Government convened a work conference on urban water utilization throughout the province, which demanded that each municipality adhere to a policy of simultaneous emphasis on development of resources and conservation of flow, giving vigorous attention to urban water use in the same way as for energy, in order to make a contribution in promoting development of the national economy.

Comrades attending the conference conscientiously reviewed development of the province's urban water utilities and analyzed the current situation in supplying water. They acknowledged that the province's urban water supply utilities have grown rapidly and that capabilities to supply water have greatly increased, but that they are a very long way from being able to meet needs for the building of production and improving the people's standards of living. At the present time, 10 of the province's cities are daily 1 million tons of water short. Inadequate urban water supply has become a problem urgently requiring solution.

The conference recognized serious waste in the use of water as one of the main reasons for the water shortage in many cities. It asked that the entire party in all cities act, and that all the people mobilize to bring about a rapid upsurge in the conservation of water. The key in water conservation work lies in conservation of industrial water, particularly water consumption by the biggest industrial consumers. Industrial use of water accounts for more than 70 percent of urban water use, and water use by large industrial consumers accounts, in turn, for more than 70 percent of industrial water use. To take hold of conservation in the use of water by large industrial consumers is tantamount to leading a "bull by the nose." All enterprises are to treat water conservation in the same way as energy conservation, make it a part of technical restructuring plans, and vigorously promote new technology and new techniques for the conservation of water. They should go

all out in the recycling of cooling water, in the recovery of waste water, in using the same water to do different things, and in combining the use of water to effect water savings. They should strive to increase the multiple utilization rate of water. All cities are to make improvements in the industrial multiple utilization rate for water a major method for solving urban water difficulties, so that within 2 or 3 years the multiple utilization rate will reach the more than 40 percent standard set by the state. Conservation of the use of water in daily life should also be diligently tackled and waste prevented. The "flat rate system" and "drinking water out of a large common pot" for water used in daily life has to be changed within a short period of time and meters installed in every household to register consumption for collection of fees.

The conference emphasized the need, while ferociously tackling water conservation, to arouse the enthusiasm of all quarters to devote major efforts to building new water sources and to expand capabilities to supply water as fundamental ways to solve urban water problems. They asked that all levels of leadership and units concerned make a decision to allocate funds for the building of new water sources in preference to the building of several plants. They should gain a clear understanding of ground water resources with all possible speed, draw up plans for building new water sources, and carry them out one by one over a period of time in order of importance and urgency. As regards funds for the building of new water sources, the initiative of the central government, local governments and enterprises should be brought into play in a cooperative effort to solve the problem.

The conference asked all levels of government to place on their important daily agendas solution of urban water problems, and to conduct regular study, assignment of resources, and inspection. Leaders responsible for industrial production should both look after the completion of production plans and economic quotas, and give attention to planned use of water and conservation in the use of water. All levels of design commissions, economic commissions, construction commissions, urban construction and water conservancy units should closely coordinate and work in concert to solve urban water problems.

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CSO: 4007/435

EDITORIAL URGES EQUITABLE USE OF URBAN WATER RESOURCES

Jinan DAZHONG RIBAO in Chinese 1 May 82 p 1

[Editorial: "Equitable Development and Use of Urban Water Resources"]

[Text] Water resources, like energy resources, are a part of the basic structure of the national economy, and are the principal factor restricting urban development. In a certain sense, water resources are even more important than energy resources. Equitable development and use of urban water resources is a major matter bearing on the national economy and the people's livelihood, and a strategic issue that should arouse a high degree of serious attention.

Shandong Province has very great accomplishments in the development and use of urban water resources. However, as a result of the past influence of "leftist" ideology and the longterm lack of centralized planning and management, development and use of water resources has been in a virtual state of anarchy, which has seriously damaged the regenerative capacity and balance of water resources, bringing about a situation of extreme shortage in urban water utilization. Change of this situation will require that efforts be devoted to equitable development and use of urban water resources.

Equitable development and use of urban water resources requires, first of all, increased awareness of the importance of water resources. Formerly it was generally believed that water resources were relatively abundant when, in fact, this was not so. Shandong Province is a water-short area. Current needs for water for industrial and agricultural production and for daily urban life are very greatly in excess of the total volume of useable water from above ground, underground, and from the Huang He. Given the present state of development of science and technology, nothing can take the place of water. Man has lived through times when there was no petroleum, electricity was not used, and there was a shortage of coal, but he has never lived for a single day in a world without water. How to develop and use such precious and limited water resources not only bears on urban construction and a secure life for the people, but also bears directly on development of the entire national economy. Hence it is necessary to highly treasure and equitably develop and fully use it.

Equitable development and use of urban water resources requires change in the former state of anarchy and the practice of centralized planning and centralized management. For a long time Shandong Province's urban water resources have not been centrally managed. Every unit using water has proceeded from its own needs, deciding for itself where and how it would tap water. In some cases, enterprises right next door to each other sank separate wells in competition for water, causing too much to be extracted and a large drop in the ground water table. Practice has shown that urban water resources are parts of a totality and that reckless and unbridled tapping of them must inevitably seriously damage the regenerative capabilities and balance of water resources. It should be clearly pointed out that ground water resources like soil, forests, and ore reserves, are not the property of a single unit but rather the property of the country. Thus they must come under centralized state management. This was not done in the past because of the influence of "leftist" ideology and mistakes we made in work. Unless urban water resources are brought under centralized management and serious attention given to overall planning and scientific tapping and use, continued destruction of water resources will be a great mistake that will adversely affect generations of posterity.

In urban development plans, equitable development and use of urban water resources must adhere to the principle of doing only what the quantity of available water permits. In urban construction, water resources are one of our points of departure in considering problems. No matter whether planning, running industries or operating other enterprises, no matter what we do, this problem has to be considered. In undertaking a project, it is necessary to find out, first of all, whether water is available and how much of it, after which it can be decided whether or not to undertake the project and at what scale. If an industrial plant is built blindly without regard for water resources, the completed plant will be unable to go into operation. Not only will no benefit result, but the country's manpower, wealth, and material resources will have been wasted. We cannot perpetrate any more such stupidities. Every city should diligently study the lessons of experience in this regard and really proceed from improvement of economic benefits to handle matters in accordance with objective laws. In future until new water resources have been found to solve the problems of water-short cities, there should be no further construction of industrial projects that consume large quantities of water.

Serious waste of water is one of the major reasons why many cities are short of water. Conservation of the use of water is a major aspect of the equitable development and use of urban water resources, and it is also a way, requiring little investment, that is readily workable, and that shows results quickly for ameliorating and solving the current urban water shortage. We must widely publicize in every industrial and mining enterprise and among the people throughout the province, the importance of conservation in the use of water to establish a concept of water resources as an extremely precious thing. Conservation of water use should be given attention in the same way as conservation of coal, electricity, and petroleum, and particular attention should go to conservation by big industrial consumers of water, with efforts made to increase industry's multiple utilization rate for water. Effective

work must be done in keeping clear water and waste water separate, in recycling water for use, and in combined use of water using the same water for many things. Where conditions permit, full use should be made of sea water and mineshaft water. Waste water, a potential energy resource, should be fully recovered for use. Economic methods must be used to strengthen management over the use of water so that the quantity of water used becomes closely linked to the economic welfare of the user. Conservation of water should be made a part of enterprise technical restructuring and energy conservation plans, and used as a major indicator in assessing enterprise management levels and administrative effectiveness. At the present time, the important value and position of water resources as well as the equitable development and use of urban water resources are becoming more and more a part of people's perceptions. Let us act positively and strive together to do an effective job in the equitable development and use of urban water resources to make a new contribution to building the four modernizations.

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## WHEAT CARE POINTERS GIVEN ON EVE OF HARVEST

Jinan DAZHONG RIBAO in Chinese 1 May 82 p 1

[Article: "Make Further Efforts To Combat Drought To Protect the Wheat"]

[Text] A little more than a month still remains until the wheat is harvested, and this is a decisive period of time. This is the key period when the grain weight of the wheat will be decided, and it is also the period when various natural disasters are likely to occur. How well the fields are cared for will play a decisive role in whether the wheat harvest is a fat or a lean one. Past practice has shown that when good care is given during the late season, the per 1000 grain weight increases and output goes up. Conversely, output is seriously hurt. Consequently, we must assiduously summarize the lessons of experience in this regard and take greater action to do a good and intensive job of caring for the wheat during the late period, with no relaxation of care until a bumper harvest is in hand.

Effective late stage wheat care entails focusing on its great needs for water and fertilizer as a result of the current serious drought situation, and as a result of the large consumption of nutrients during its late growth stage. This requires earnest attention to watering to combat drought and to sensible top dressings of fertilizer to assure necessities for wheat growth. It also requires prompt hoeing to eliminate weeds and to loosen the soil to conserve soil moisture. As temperatures rise, outbreaks of wheat aphids, wheat rust, powdery mildew, and such diseases and insect pests will occur one after another, so pesticides and pesticide apparatus should be made ready and forecasting and reporting work should be intensified so that prompt prevention and control can be done upon discovery, and the diseases and insect pests wiped out when they first break out.

Hot dry winds are the major disaster to befall wheat in Shandong Province during the late season. They do much damage to output and require that watering for wheat ripening be done, or that petroleum growth promoters be sprayed, or that potassium dihydrogen phosphate be applied for active prevention to reduce damage insofar as possible. Additionally, in fields where individual plants are too numerous, making ventilation and light penetration poor and the stalks and stems spindly and weak, action must be taken to prevent lodging to guard against decreased yields.



## BRIEFS

**AUTUMN CROPS**--Having completed the sowing of over 50 million mu of autumn crops, cadres and the masses in Shandong Province's rural areas now shift their attention to field management and autumn farming. By the end of June, the province hoed 50 million mu of farmland, topdressed 37 million mu of fields and controlled insect pests on 28 million mu of fields. [SK052255 Jinan Shandong Provincial Service in Mandarin 2300 GMT 4 Jul 82]

**WHEAT HARVESTING**--Thanks to dry and hot winds and the rainfall in late May, the wheat crop throughout Shandong Province has ripened earlier than usual. The broad masses of rural cadres and the people are plunging into wheat harvesting. As of 5 June, the province has harvested over 17 million mu of the wheat crop. Heze and Linyi Prefectures and Zaozhuang Municipality have fulfilled their wheat harvesting task by 60-70 percent. [SK070637 Jin Shandong Provincial Service in Mandarin 2300 GMT 5 Jun 82]

**WHEATFIELDS**--Shandong Province has achieved good results in interplanting summer-sown crops with wheat on wheatfields. Some 20 million mu of summer-sown crops have been interplanted. Some 19 million mu were devoted to corn. This has created a favorable condition for a good autumn harvest. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 15 Jun 82 SK]

**AUTUMN HARVEST MEETING**--The Shandong Provincial CCP Committee recently held an emergency meeting urging efforts to pay close attention to summer planting and field management to enable a good autumn harvest to compensate for a decreased summer harvest. The provincial CCP Committee held that it is possible to overcome the decreased summer harvest with a good autumn harvest because grain output is two-thirds of the annual grain output, and spring-sown crops totaled 46.8 million mu in the province, 3 million mu more than in 1981, and seedling growth was good. The meeting called for efforts to guarantee grain areas while stabilizing the acreage of cotton, peanuts and tobacco; to plant more high-yield crops such as sweet potatoes resistant to drought and infertile soil; and to strengthen and improve responsibility system. [SK171009 Jinan Shandong Provincial Service in Mandarin 2300 GMT 15 Jun 82]

**REMEDIAL PRODUCTION MEASURES**--The CCP Committee and administrative office of Weifang Prefecture, Shandong Province, sponsored a wired broadcasting rally on 5 June, urging the people throughout the prefecture to grasp well summer harvesting and sowing in a timely manner and vigorously engage in summer farming

in an effort to achieve a better autumn harvest to make up the loss of wheat output caused by the serious drought. To successfully fulfill the annual production plan, the rally urged counties under the prefecture to do a good job in strengthening the field management of corn crops and planting sweet potatoes. Over 1.4 million mu farmland from which wheat has been reaped in the prefecture should be planted with sweet potatoes on a crash basis. Efforts should be made to ensure a full stand of potato seedlings. Meanwhile, the rally urged localities to adopt every possible means to engage in the production of a diversified economy to increase their annual income as much as possible. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 5 Jun 82 SK]

CSC: 4007/463

ATTENTION DRAWN TO EROSION PROBLEMS IN CHANG JIANG BASIN

Shanghai WEN HUI BAO in Chinese 9 May 82 p 1

[Article: "Chang Jiang Basin Erosion Serious, Comprehensive On-the-Ground Investigation at 19 Counties in 10 Provinces and Regions Reveals. Experts Believe This Has Been Brought by Clearing of Steep Slopes and Severe Destruction of Ground Cover"]

[Text] Since 1958 erosion in the Chang Jiang basin has become increasingly serious, and the trend toward deterioration remains unhalted. Experts concerned from the Chang Jiang Basin Planning Office, the Chinese Academy of Sciences, and the Beijing Forestry Academy came to this conclusion following on-the-spot investigations at 19 key counties where erosion has taken place in the Chang Jiang River basin.

Beginning last October the Chang Jiang Basin Planning Office was entrusted by the National Agricultural Commission to organize more than 100 water and soil conservationists from provinces and regions concerned to take part in an on-the-spot investigation of key erosion areas in the Chang Jiang basin. This investigation lasted for more than 3 months. This was the first comprehensive scientific investigation of soil and water resources in the Chang Jiang basin that China has ever undertaken.

Results of the on-the-spot investigation showed serious erosion to have taken place in the basins of some of the tributaries of the Chang Jiang. Both banks of the Wu Jiang, a tributary of the Chang Jiang that flows through Guizhou Province, used to be densely covered with large, lush forests. Now, however, as a result of reckless cutting and denudation, many mountainlands have been turned into slabstone slopes where not even a blade of grass grows. Erosion in Sichuan Province is rather astounding. Last year 640 million tons of silt from this province flowed into the Chang Jiang. This is almost the equivalent of 10 million mu of cultivated land to a depth of more than 10 centimeters having been washed away. As a result of their on-site investigation of 19 counties in 10 provinces and regions, the experts discovered that the soil layer in these places was in process of gradually becoming infertile, and that some soil has already lost its value for use in agriculture.

Some of the experts who participated in the scientific on-the-spot investigation believe the main reasons for the increasingly serious erosion of the Chang Jiang basin lie in the clearing of steep slopes and severe destruction of ground cover. Because of mistakes made in our work and unplanned population growth in some places, tremendous pressures have been exerted on local agricultural production. This has led, in turn, to reckless cutting and denudation of forests and blind clearing of land in order to satisfy increasing requirements for the necessities of life such as grain rations and fuel.

The experts believe that comprehensive action must be taken to bring the problem of erosion in the Chang Jiang basin under control. In the Chang Jiang basin, temperatures are moderate, rainfall copious, and the restorative and regenerative powers of trees, bushes and grasses are rather strong. If strict action is taken to close off mountains to propagate forests, within 2 or 3 years time the vegetation cover rate for the Chang Jiang basin will very greatly increase.

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CSd: 4007/437

AGRICULTURAL DEVELOPMENT ATTRIBUTED TO RESPONSIBILITY SYSTEM

Taiyuan SHANXI RIBAO in Chinese 12 Apr 82 p 1

[Article by SHANXI RIBAO correspondent: "Excellent Situation of Agricultural Development in Our Province From Introduction of Responsibility System in Various Forms"]

[Text] The responsibility system in various forms has been basically adopted in our countryside, and major changes are now things of the past. The various forms of responsibility system are in the following proportions: Out of more than 126,000 accounting units in the province, 1.9 percent of them have adopted the system of paying remunerations according to short-term contracts; 5.4 percent, the system of remunerations according to the output of special farm work done; 11 percent, the system of unified management and paying remunerations according to output from individual labor; 1.5 percent, the system of unified management and paying remunerations according to the result of production groups; 9 percent, the system of unified management and fixing production quotas on the basis of households; 69 percent, the system of unified management and allotting work to individual households; 1.9 percent, the system of private plots and responsibility plots; and 0.3 percent, the other forms.

Last December, before the all-round improvement of the responsibility system, it was tentatively arranged that 36 percent of these accounting units should adopt the system of fixing production quotas on the basis of households or allotting work to individual households. This year, as we can see, these units have increased to 78 percent instead of being decreased. It shows that since the people are aware of the actual conditions, such a high proportion is practical and conforms to the present level of productive forces in most rural areas. It is not true that uniformity has been arbitrarily imposed on the responsibility system.

Implementation of the responsibility system this year has brought about an excellent situation in the development of the countryside. Fixing production quotas on the basis of households and allotting work to individual households are important components of the socialist rural economy, and this fact has been implicitly acknowledged by the cadres and commune members in the countryside. The misunderstanding on the part of some peasants who mistook allotting work to individuals for dividing up collective land for individual

farming and so forth has been made clear, and they no longer fear that the responsibility system may soon be changed. Many concrete problems, such as the irrational distribution of plots to individuals, have been gradually solved. The people are now feeling at ease, and their enthusiasm, having been aroused, is being transformed into even greater material forces. More and more commune members have quietly bought fine strains, chemical fertilizers, machinery and other means of production by doubling or redoubling their investments in this year's expanded reproduction. "Greatly increased output" and "above-quota output" have become the common topics of conversation among the cadres and commune members. The cadres at the county, commune and production brigade levels have become more ideologically enlightened, and the conflicting ideas which existed among them last year have disappeared. The "leftist" ideas have been basically overcome. The party committees at various levels are now more experienced in organizing their leadership over the introduction of the responsibility system. Thus there is now a strong impetus to the development of an excellent situation in agricultural production.

Of course, there is still a great deal of work to be done in perfecting the responsibility system, and it is necessary for leaders at various localities to go deep among the basic level units for investigation and study in order to uncover problems and solve problems.

9411

CSO: 4007/419

## BRIEFS

SPRING SOWING IN SHANXI--State plans for spring sowing in our province have been completed. According to statistics, the acreage of grain crops for spring sowing this year is 33,260,000 mu, an increase of 470,000 mu over last year; that of cotton, 3,699,000 mu, some 99,000 mu over the state plan; that of oil-bearing plants, 3,594,000 mu, an increase of 54,000 mu over last year; that of beetroots, 295,000 mu, an increase of 15,000 mu over the state plan; and that of tobacco, 100,000 mu, of which 115,000 mu has been initially completed. With a clear understanding of the principle that "planned economy should prevail and the regulation by the market can only be supplementary," the leaders at all levels and the broad masses have regarded arrangement of the crop pattern as a strategic task and adapted their measures to local conditions so as to bring the local strong points into play. That is why the state plans for spring sowing this year have been fairly well completed. [Text] [Taiyuan SHANXI RIBAO in Chinese 17 Apr 82 p 1] 9411

CSO: 4007/419



## EMPHASIS PLACED ON PADDY RICE FOR GOOD GRAIN HARVEST

Chengdu SICHUAN RIBAO in Chinese 10 Apr 82 p 2

[Article by Cui Mingxin [1508 2494 2450]: "Pay Main Attention to Paddy Rice in Striving for Good Grain Harvest This Year"]

[Text] Paddy rice is the main spring grain crop in our province. Its acreage accounts for approximately one-third of the total grain acreage, and its output accounts for approximately one-half of the total grain output. It therefore occupies an important place in grain production. Giving full play to the strong points of paddy rice and accelerating the development of its production will certainly be an effective way for the province to maintain a steady increase in grain production.

First, we should carefully arrange the crop pattern and, if conditions permit, gradually expand its acreage. As shown by many years' experience, it would be practical to have a crop pattern with middle rice in the dominant position, if we take the situation of the whole province into account. Such a pattern will enable paddy rice to grow in the most favorable season and yield a bumper harvest. In eastern and southern Sichuan, where the weather is warm and sunlight and water resources are plentiful, it would be desirable to develop double crops of rice as a means of fully utilizing natural resources to increase rice output. The present distribution of paddy rice fields is basically rational and should remain unchanged in the near future. In recent years, some localities have made great efforts to raise the per-unit output and at the same time actively improved their irrigation facilities, expanded their farmland and increased their paddy rice acreage with good results in increased output. Santai County has done a great deal of work in water conservation since 1980, and in 1977, took strong measures to transform land into paddy fields. It has not only created the necessary conditions for raising the per-unit output but also expanded the paddy rice acreage every year. Thus in 5 years, more than 60,000 mu of dry land was transformed into paddy fields. In 1980, compared with 1976, the total paddy rice output increased by 61.2 percent, and its per-unit output reached 967 jin, an increase of 409 jin. The total grain output was increased by 46.9 percent, with an average progressive increase of 10.1 percent each year. Therefore, the planned and systematic expansion of paddy rice acreage will enable the province to make better use of our natural resources and accelerate the development of paddy rice production.

Second, we should actively popularize the use of hybrid rice and regular fine strains and take advantage of the latter's strong points. Every leap in the per-unit output of paddy rice in our province began with the use of some new fine strains. In the 1970's, the experiment in ternary hybrid was a success which marked a breakthrough in paddy rice production and raised the per-mu output to more than 1,000 jin in large areas. In 1981, more than 13 million mu was planted with hybrid rice in the province, and the average per-mu yield reached 901 jin. The use of hybrid rice alone enabled the province to raise its cereal output by more than 700 million jin. Of course, the scope for the use of hybrid rice is limited, because its use calls for suitable weather, water and fertilizer conditions, and a proper arrangement of crop order. Attention should be paid to the simultaneous popularization of both fine strains and good methods. In eastern and southern Sichuan, where the weather is hot and dry, it is particularly necessary that hybrid rice fields be well supplied with water, and the planting should be carried out with methods suitable to local conditions.

Regular rice does not have such a high per-unit output as that of hybrid rice, but the scope of its use is generally broader, and its acreage can be wider. In future, the proportion of regular rice to be planted should be fairly high. Therefore, we should popularize both hybrid rice and the regular fine strains. The old strains which contain impurities and have degenerated should be replaced by new high-yield strains in the course of popularization.

Third, we should greatly improve our planting techniques with particular attention to the cultivation of seedlings. Sturdy seedlings is an important condition for the increase of paddy rice output, and the remarkable rise in the per-unit output of paddy rice in our province in recent years was closely related to the improvement of our techniques in cultivating sturdy seedlings. If we want to further raise the per-unit output of paddy rice, we should further improve our planting techniques with particular attention to the cultivation of seedlings. Practice has shown that the method of nurturing seedlings in hothouses and then planting single stems in seedling fields for better tillering has many advantages, such as the ability to withstand unfavorable weather in the early spring and the higher speed of growing; early tillering and high elasticity of seedling age, with better quality and higher survival rate; the ability to avoid the effects of high temperature in the dry summer season and low temperature at a later stage, more ears, earlier maturity and higher yield; the advantage of leaving selected seedlings in seedling beds, which will help raise paddy rice output; and better utilization of labor in developing the tradition of intensive farming. This method of seedling cultivation should be popularized not only for hybrid rice, but also for regular middle rice planted in other types of fields. For early rice, the method of cultivating seedlings in hothouses or under plastic sheets should be widely used in order to keep the seedlings from rotting and to hasten the growth of paddy rice. This will also enable us to plant the late rice earlier and to raise its output. At the same time, attention should be paid to the scientific use of fertilizers, to rational close planting, and to the prevention of insect pests.

Fourth, we should strive to raise the output in the medium and low output areas so as to maintain a well balanced increase. The seven prefectures and municipalities in eastern and southern Sichuan are important paddy rice producing areas. Their rice acreage accounts for more than one-half of the total provincial acreage, and in the past several years, the restoration and development of paddy rice production were quite rapid. In 1981, the average per-mu output from more than 23 million mu in these seven prefectures and municipalities increased by 51 jin, and the total net increase was more than 1.2 billion jin. The rate of increase was more than 9 percent. At present the paddy rice output in most counties is at the medium or low level, and there is good potential for further increase. Although the river valleys are dry and hot, and the mountainous areas are cold with drizzles in eastern and southern Sichuan, there is always warm weather with abundant sunlight, water and other natural resources in most places. As long as the crop pattern is rational and proper methods are used in planting, it is entirely possible for the output to be raised by a wide margin. If the per-unit rice output in eastern and southern Sichuan can be raised to the average provincial level, the cereal output will be increased by more than 1.9 billion jin.

There are more than 6 million mu of rice fields in the 39 counties in the mountainous areas surrounding the plain in our province. The paddy rice output in most of these counties is still low. The natural climate and the conditions of production in these places are rather poor; however, as long as we take the realities in mountainous areas into account, follow the natural law, and combine traditional farming with agrotechnology, we can still obtain high yields. In the past, the seven mountainous counties in Ya'an Prefecture had about the same per-unit paddy rice output as that of the other mountainous counties. In recent years, these counties constantly explored the methods of raising paddy rice output and summed up their experiences in the light of the characteristics of mountainous areas, such as low temperature and scarcity of sunlight. After certain experiments, they actively popularized the use of hybrid rice and duly improved the methods of planting, with the result that paddy rice output was raised by a wide margin. In 1981, the average per-mu paddy rice output in these seven counties was 785 jin, or 84 jin higher than the provincial average. Among them, Hanyuan, Tianquan and Lushan counties had per-mu outputs of more than 800 jin, while Shimian County's was above 1,000 jin.

Paddy rice production in our province has entered a new stage of development, and the prospects are very bright. As long as we provide more active leadership, rely on correct policies and science, and take various realistic key measures, a sustained increase in the output of paddy rice is entirely possible.

9411

CSO: 4007/420

## MEASURES TO FIGHT DROUGHT SURVEYED

Tianjin TIANJIN RIBAO in Chinese 8 May 82 p 1

[Article: "The Fight Against Drought--Focus of All Rural Work"]

[Text] A spring farming and production campaign focusing on the fight against drought to assure vegetables, to assure the summer harvest, and to assure spring sowing is now being urgently conducted in the suburbs of Tianjin and in the rural villages of the county. Throughout the municipality's rural villages, the broad masses of cadres and people are sinking wells along the edges of fields, digging ditches, leveling the land, and diverting water. Between the lunar new year and the present time, 868 new wells have been sunk, 888 have been equipped, and 1,033 decrepit wells have been put back into production. More than 400 spray irrigation machines have gone into operation, and more than 120,000 meters of ditches have been repaired to prevent leaks. In addition, more than 11,000 pump wells have gone into operation and temporary pump sites have been set up at more than 2,000 sites. As a result, despite the serious drought situation, 1.14 million mu of wheatfields in the municipality's rural villages have been watered, 890,000 mu of unplanted fields have received a spring watering, and 1.23 million mu of open field crops have been sown.

As a result of 3 consecutive years of serious drought, the municipality's difficulties in agricultural production have become increasingly great. Right now there is virtually no water available for use above ground in rural villages throughout the municipality, and the ground water table has dropped everywhere. Volume of water from pump wells has greatly decreased, and more than 6,000 pump wells either are no longer able to produce water or produce only half the full rate. In addition, the high temperatures and strong winds since the lunar new year have caused a great amount of evaporation and loss of soil moisture. The amount of moisture deficient soil increases daily. The increasing drought situation seriously threatens both normal growth of crops to be harvested during the summer and uninterrupted spring sowing. Unless a soaking rain soon falls, harvest of 700,000 mu of the municipality's 2.2 million mu of summer grain crops cannot be assured. Of the 4 million mu to be sown during the spring, 1.8 million mu will not be sown on time, and because of the loss of soil moisture in the open fields that have already been sown, a full stand of crops cannot be readily assured. Therefore, an urgent task now facing the broad masses of cadres and people

in the rural villages of Tianjin Municipality is to fight effectively the fight for spring farming and production centering on the fight against drought to assure vegetables, to assure the summer harvest, and to assure spring planting.

Beginning now, all rural work must center around and be subordinate to this focus on the fight against drought.

First it is necessary to inculcate a mentality of a fight against great drought and great disaster to win a bumper harvest, to guard against and overcome feelings of pessimism and fear of difficulties on the part of some cadres and a situation of letting matters take their course. While fully calculating difficulties, we must be aware of the advantageous conditions for victory over drought: The programs and policies that have ensued from the Third Plenary Session [of the 11th Party Central Committee] have sunk deeply into people's minds, and implementation of agricultural production systems of responsibility, in particular, have aroused the enthusiasm of the broad masses of cadres and people. The degree of farm mechanization in Tianjin Municipality is fairly high; water conservancy facilities are fairly complete; and material conditions for fighting against drought are also good. In the course of several years of struggle against drought, leaders at all levels and the broad masses have accumulated experiences in triumph over disaster to win bumper harvests for the year as a whole, with the summer harvest supplementing the autumn harvest, and the autumn harvest supplementing the summer harvest, etc. We must make full use of these advantageous conditions to actively overcome disadvantageous factors, to strengthen our confidence, and to do an effective job in "one combat and three assurances."

Second is the need to genuinely strengthen leadership of work to combat drought. This is crucial to winning victory in the struggle against drought. Leadership cadres at all levels are to devote their main energies to the struggle against drought. Ranking prefecture and county leaders, the infirm and those carrying out daily duties excepted, are to go down into the front-lines of the fight against drought to assign individual work tasks, to fix responsibilities, and to do everything possible. For communes and brigades in which the drought situation is serious, difficulties numerous, and production potential fairly great, particular attention should go to the transfer of competent cadres who can help solve conceptual problems and actual problems in fighting drought. In addition, it is necessary to stabilize and perfect production responsibility systems, giving attention to this as a major action in the fight against drought.

Third is the need to arouse the masses and take a firm grip on implementation of measures to fight drought. Right now the above ground water situation is utterly hopeless, so we must arouse the masses to vigorous tapping of ground water resources. Practice in many communes and brigades has shown that large-scale sinking of guozhui [6938 6923] wells, intube [2252 4619] wells, yaba [1090 2116] wells, and dug wells, and the digging down into rivers or deepening of ditches are all effective means of opening up water sources and launching struggle against drought. Additionally, attention has to be directed



to the renovation, equipping, and maintenance of existing pump wells to increase the volume of water produced and increase benefits from individual wells. Wuqing County installed mechanical pumps, changed pump diameters, tightly sealed the pipe going down inside the mouth of wells, and renovated equipment to increase water lift, 497 wells thereby providing benefits to the full. This merits emulation. For those communes and brigades having requisite conditions, installation of some spray irrigation equipment should also be urged as well as the installation and repair of ditches to prevent leaks. In short, the masses should be fully aroused and relied upon, and every available means used to tap ground water sources.

Only slightly more than a month remains until summer harvest, and the time for spring sowing is also extremely pressing. Opportunities cannot be lost and the time will not return again. We must be sure to grasp firmly the opportune time, and take firm hold of wheatfield care and spring sowing. Places having water resources should give priority to the watering of wheat; 1 mu watered makes 1 mu more. Additionally, much effort should go to spring sowing and interplanting to lay a good foundation for the autumn crop to supplement the summer crop. All vigorous actions should be taken to plant whatever ground can be planted, and when planting genuinely cannot be done, preparations should be made to change from spring to summer planting.

Industrial, transportation, financial and trade units are to vigorously support the fight against drought. They must do urgently whatever is urgently required to fight drought, supply whatever is needed to fight drought, and increase work efficiency, contributing their strength to fighting disaster to win a bumper harvest.

9432

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BRIEFS

PEASANT INCOME--Average net income per Xizang peasant and herdsman from the collective distribution last year was 162 yuan, an increase of 35 yuan over 1979. According to statistics, each peasant and herdsman also earned an average of 38 yuan from domestic sideline occupations, thus earning a total of 200 yuan, a record for the region. [Lhasa Xizang Regional Service in Mandarin 0000 GMT 3 Jul 82 HK]

CSO: 4007/463



SHAOXING MUNICIPALITY GRAIN PRODUCTION INCREASE URGED

Hangzhou ZHEJIANG RIBAO in Chinese 3 Apr 82 pp 1, 3

[Article: "Establishing Measures To Emphasize Agriculture in Many Aspects, Shaoxing City's Communes and Brigades Encourage Farmers To Increase Output of Food Grains"]

[Text] Many communes and brigades in the farm villages of Shaoxing Municipality have implemented measures to emphasize agriculture in many aspects and have realized visible results. These measures to emphasize agriculture were carried out, starting from last year, to stabilize the foundation of agriculture and to guarantee stable increases in food grains production.

As sideline production of the communes and brigades develops, the labor force in the farm villages in Shaoxing City has continued to leave agriculture. Commune members engaged in farming must complete the tasks of unified procurement and assigned procurement of agricultural and sideline products for the state, and they must also solve the problems of providing food and firewood for industrial and sideline workers, who constitute 52 percent of the total labor force of the farm villages in the whole city. The working conditions, the economic gain, the welfare and salaries of industrial and sideline workers are generally better than those of commune members engaged in farming. This situation had seriously affected the enthusiasm of some cadres and farmers to increase the output of food grains. People wanted to work in the factories and leave the locality. The leading force on the frontline of agriculture and the labor force needed could not be guaranteed. To stabilize the foundation of agriculture and guarantee increased growth in food grains production, many communes and brigades in the farm villages in Shaoxing City started out from the actual situation and implemented a series of measures and policies to encourage farmers to increase the output of food grains at the beginning of 1981.

While establishing the production responsibility system for each profession, the communes and brigades in Shaoxing City insisted on taking the farming team as the basic unit to balance the basic salary and the ratio of awards in other professions. To enable the commune members engaged in farming to receive generally the same salary for an equal amount of work as in other professions, and to keep the salary of the farming team not lower than that in other professions, many communes and brigades paid widespread attention

to grasping the following four points in establishing the goals of the responsibility system and in accounting: One was that the goals of the responsibility system in agriculture provided greater leeway. The goals of the "knowing early" plans and the goals of the responsibility system were not established too far apart so that agricultural output could surpass the levels of the past. The second was that the basic salaries determined at the beginning of the year by each profession and the estimated number of awards were both balanced on the basis of agriculture. The third was that the many kinds of overtime pay and subsidies of commune and brigade enterprises were controlled to prevent commune members engaged in industrial work receiving higher actual salaries than commune members engaged in agriculture. The fourth was that because agricultural production was limited by climatic conditions and because business of some enterprises was influenced by market factors, some situations could not be foreseen. To avoid large differences in salary among the professions, the method of "limiting awards, using surplus income to make up for deficiencies" was implemented by the enterprises. In this way, commune members engaged in agriculture willingly engaged in agricultural work and their enthusiasm was very high.

In the use of profits submitted by the enterprises to the higher authorities, a part was used by the enterprises to expand reproduction, another part or most was combined with the total output of food grains, revenue from diversification and important links to increase output, and the profits were given to the brigades. In this way, one act produced two benefits. Commune members engaged in agriculture benefited from the profits given them by the enterprises, and food grains production was stimulated. Jiefang Commune allocated 70,000 yuan from the profits submitted by the commune enterprises to the higher authorities and gave the money to the production team for use in connection with total output of food grains, for use to establish links to increase yield, livestock production, and planned parenthood. The concrete method of allocating the funds was as follows: An amount of 33,290 yuan was given to increase total output of food grains. For each 100 jin of food grains produced by the production team, the production team could receive 8 fen 9 li in profit assigned to it by the commune. For every 100 jin of food grains over the goals of the responsibility system, the production team could receive a profit of 2 yuan 5 jiao assigned to it by the commune. In connection with increasing the accumulation of indigenous fertilizers, an award of 10,950 yuan was given according to the actual number of square meters of indigenous fertilizers accumulated per season. In connection with the overturning and tilling of grass fields, the quality of summer harvest, summer planting and progress, 4,760 yuan were awarded. In connection with the monetary amount of live hogs sold to the state, 4,900 yuan were awarded. In connection with the number of sows raised, 2,100 yuan were awarded. In connection with the goals of planned parenthood, 7,000 yuan were appropriated. The remaining 7,000 yuan were used as awards for cadres of the brigades and production teams of the whole commune and the heads of contract work groups who have completed the goals of the responsibility system of their post. Commune members engaged in agriculture received a profit of nearly 6 yuan per mu from commune enterprises. The assignment of profits by the brigades was similar to that provided by the communes. This forcefully mobilized the

enthusiasm of the commune members engaged in agriculture. Last year, 102 of the 114 production teams of 25 brigades of this commune produced increased output. The total output increased by more than 1.257 million jin, an increase of 7.2 percent. The number of live hogs sold also surpassed the goals of the responsibility system established at the beginning of the year by 33.2 percent.

The number of laborers was determined by the area of the fields. The number of farm workers as a percentage of the total labor force was established by regulation. When the number of people engaged in industrial and sideline production in a commune member family surpasses a certain proportion, the family must pay a fee to supplement agriculture. Commune members who return to farm work are given a salary based on the actual number of work points earned. The Wuyun Brigade of Chengdong Commune has a silk weaving plant, a glass fiber plant, a gauze mask factory and a shipping team totaling nine industrial and sideline units. There was a shortage of workers. To guarantee that agriculture has a sufficient labor force, this brigade implemented the method of determining the size of the labor force according to the area of farmland at the beginning of last year. Ten workers were assigned to work on each 3.7 mu of paddy fields, and 60 percent of the number of workers per family had to engage in farming. The remaining 40 percent of workers of each family were allowed to engage in industrial and sideline production. Salaries were calculated for each family according to this ratio. Families with more than 40 percent of its members engaged in industrial work had to pay an equivalent annual fee of 48 yuan for every 10 workers to supplement agriculture. Families with more than 40 percent of its workers engaged in outside sideline production had to pay an equivalent annual fee of 120 yuan for every 10 workers to supplement agriculture. After implementing this measure, more than 40 people who had gone away blindly to engage in sideline production immediately returned to participate in agricultural production. The labor force for the frontline in agriculture was guaranteed. Cadres and commune members generally said: "Implementing the method of subsidizing agriculture has made people willing to engage in agriculture and industrial work. Agriculture is guaranteed and food grains can increase."

Management of the labor force was strengthened, and the policy of having people engaged in sideline production elsewhere to hand over their economic profits to the brigade was appropriately handled. The personal income of people of some commune brigades who are engaged in sideline production elsewhere is mostly much higher than that of commune members engaged in agriculture at the brigade. In the past, the methods of allowing the workers to hand over only a small portion of the wages to the brigade, of distributing total income according to a scale for equivalent labor within the brigade, and allowing the workers to hand over only a small portion of savings without sharing the social burden were implemented. The methods easily drove some commune members away from participating in farm work. Since the beginning of last year, each commune brigade implemented a method of appropriately increasing the portion of wages earned by people who were engaged in sideline production elsewhere to be handed over to the brigade, and ordering them to submit a part of their wages to offset social costs. The brigades also

established regulations allowing people engaged in sideline production elsewhere to receive cash and material rations within the quota of contract production. Those who went elsewhere on their own were also subjected to economic sanctions. Brigades with more people who had gone elsewhere also improved their method of rationing food grains to increase the labor enthusiasm of the commune members engaged in agriculture.

A work post responsibility and awards system for cadres of brigades and production teams and heads of contract work teams was established. Cadres of brigades and production teams and heads of contract work teams generally remain at their work post and cannot go elsewhere to earn extra money. To encourage them to remain and do farm work well, and especially to do the work of food grains production well, the whole city's commune brigades began to establish a work post responsibility and awards system for basic level cadres in farm villages beginning in 1979. Cadres of brigades and production teams who have completed the work post responsibility requirements well can receive an award of 20 to 30 yuan per year from the commune and the brigade. Last year, to stimulate cadres of brigades and the production teams to pay further attention to doing food grains production well, rules were established so that those who did not complete the task of the responsibility system in food grains production and those who did not lead in implementing and encouraging the policy of increasing the output of food grains were not awarded. This year, the work post responsibility system for cadres was again enlarged in scope to include heads of contract work teams. Now, most of the localities have implemented this measure.

In rationing materials, more benefits were given to commune members engaged in farming. To encourage the enthusiasm of increasing the output of food grains, more benefits in economic rations were given to commune members engaged in agriculture, and the spirit of emphasizing agriculture was also manifested in rationing food grains, edible oil and sideline products. Most commune brigades did the following: industrial and sideline workers enjoyed such rations of food grains for contracted work. The rations received for that part of the work over the contract were given to the commune members engaged in farm work to enjoy. Industrial and sideline workers of some of the brigades receiving less food grain rations for contract work were allowed to enjoy a part of the rations for surplus output, but they had to purchase the surplus at negotiated prices (the difference in price was generally paid for by the brigades or enterprises). The second was that at some commune enterprises, workers were allowed to enjoy food grain rations within the guideline for contract work. A part of what they received was provided according to food grain rations based on the amount of labor. The commune subsidized the difference in ration submitted by the enterprises to the commune and paid the production teams or subsidized the production teams according to a certain percentage of the basic wages of commune members engaged in industrial work. The third was that some brigades had more food grain rations according to the amount of labor performed within the guidelines of contract work, so that first withdrew a part of the rations according to the number of work points for engaging in farm work. The rest was shared by all agricultural and industrial sideline professionals. The fourth was that some commune brigades had less land, and their tasks of food grains procurement were heavy.

Therefore, the basic rations of food grains were appropriately lowered (but not less than a per capita average of 450 jin) and the rations based on labor performed by commune members engaged in farming were increased.

Measures to increase agricultural output which have a higher cost but which have produced visible results are subsidized by the commune brigades. In recent years, many commune brigades of this city implemented appropriate methods of subsidies by communes and brigades according to the needs to expand nylon cultivation of seedlings and to increase the application of phosphorous and potassium fertilizers to reduce the burden of the production teams and to stimulate the development of food grains production. The Guanshi Commune subsidized half of the expenses of the agricultural teams for 80 jin of phosphorous fertilizers and 10 jin of potassium fertilizers per mu. The Zhoujiawan Brigade of Taoan Commune subsidized half of the expenses of the agricultural team to purchase thin nylon sheets to expand nylon cultivation of seedlings.

9296

CSO: 4007/373

BRIEFS

DIVERSIFIED ECONOMY--Jiaxing Prefecture, Zhejiang, actively develops diversified economy. During the first 4 months this year, the prefecture had procured 67 million yuan of farm and sideline products for the state, marking an increase of 16 percent as compared with that in the same period last year. [Hangzhou Zhejiang Provincial Service in Mandarin 1030 GMT 24 Jun 82 OW]

PRODUCE TARGETS--As of the end of May, 182 million jin of barley, wheat, broad beans and peas had been purchased from Zhejiang Province meeting 36 percent of the total purchase target. At the same time, 80.05 million jin of rapeseeds had been purchased from the province; this was 3.5 million jin more than the purchase made by 31 May 1981. [Hangzhou Zhejiang Provincial Service in Mandarin 1030 GMT 4 Jun 82 OW]

CSO: 4007/463



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TITLE: "The Soil Regions of China"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, 1982  
pp 97-109

TEXT OF ENGLISH ABSTRACT: The present paper deals with the principles and methods of regionalization of soils in China. The soil resources of the whole country may be delimited into three high level categories, i.e., I. Great soil zone; 2. Soil zone; 3. Soil region.

First, the whole territory of China is divided into four great soil regions based on the main variation of soil features and natural environments, namely, I. Allitic great soil region (or ferrallitic great soil region); II. Siallitic great soil region; III. Arid great soil region; IV. Alpine great soil region.

Under these four great soil regions, different soil zones (or soil belts) are divided mainly according to the zonal soil types and their related bioclimatic conditions. The soil zone is further subdivided into soil regions. Each region

[Continuation of TURANG XUEBAO No 2, 1982 pp 97-109]

represents a different soil sequence and related landscape. The utilization, management and ameliorative measures in a soil region are generally similar. The delimitation of soil regions is as follows:

I Allitic great soil regions

I<sub>1</sub> Latosol zone

- I<sub>1</sub>(1) Phospho-calcic soil region of South China Sea Islands
- I<sub>1</sub>(2) Latosol and mountain yellow earth region of southern Hainan Island
- I<sub>1</sub>(3) Latosol and paddy soil region of southern Taiwan Island
- I<sub>1</sub>(4) Latosol and paddy soil region of northern Hainan Island and Leizhou Peninsula
- I<sub>1</sub>(5) Latosol and paddy soil region of Hekou and Xishuangbanna

I<sub>2</sub> Lateritic red earth zone

- I<sub>2</sub>(1) Lateritic red earth and paddy soil region of mountainous and hilly land of northern and mid-Taiwan
- I<sub>2</sub>(2) Lateritic red earth and paddy soil region of mountainous and hilly land of southern China
- I<sub>2</sub>(3) Paddy soil and lateritic red earth region of the Zhujiang Delta
- I<sub>2</sub>(4) Rendzina and lateritic soil region of Wenshan-Debao (eastern Guangxi)
- I<sub>2</sub>(5) Lateritic red earth and torrid red soil region of southern Mt Hengduan



I<sub>3</sub> Red earth and yellow earth zone

- I<sub>3</sub>(1) Red earth, yellow earth and paddy soil region of Jiang Nan (south of the Changjiang River) mountainous land
- I<sub>3</sub>(2) Rendzina and red earth region of central Guangxi and southern Guizhou
- I<sub>3</sub>(3) Red earth and paddy soil region of Yunnan Plateau
- I<sub>3</sub>(4) Red earth and paddy soil region of Jiang Nan (south of the Changjiang River) hilly land
- I<sub>3</sub>(5) Paddy soil region of Poyang Lake
- I<sub>3</sub>(6) Paddy soil region of Dongting Lake
- I<sub>3</sub>(7) Yellow earth, rendzina and paddy soil region of surrounding mountains of the Sichuan Basin and Guizhou Plateau
- I<sub>3</sub>(8) Purplish soil and paddy soil region of Sichuan Basin
- I<sub>3</sub>(9) Paddy soil region of Chengdu Plain
- I<sub>3</sub>(10) Red earth and yellow earth region of Zayü-Mêdog (southeastern Tibet)

I<sub>4</sub> Yellow brown earth and yellow cinnamon soil zone

- I<sub>4</sub>(1) Paddy soil region of the lower and middle Changjiang valley
- I<sub>4</sub>(2) Yellow brown earth and paddy soil region of the Changjiang-Huai River hilly land
- I<sub>4</sub>(3) Yellow brown earth and paddy soil region of the Dabie (northern Anhui) and Dahong (northern Hubei) mountains

- I<sub>4</sub>(4) Paddy soil and gray fluvo-aquic soil region of the Changjiang-Han river plain
- I<sub>4</sub>(5) Yellow brown earth region of the Xiangyang valley
- I<sub>4</sub>(6) Yellow cinnamon soil region of the Hanzhong and Ankang Basin

II Siallitic great soil region

II<sub>1</sub> Brown earth, cinnamon soil and dark loessal soil zone

- II<sub>1</sub>(1) Brown earth region of the Shandong-Liaodong peninsulas
- II<sub>1</sub>(2) Fluvo-aquic soil and saline alkaline soil region of north China alluvial plain
- II<sub>1</sub>(3) Fluvo-aquic soil region of lower Liao River plain
- II<sub>1</sub>(4) Brown earth and cinnamon soil region of the Qinling-Funiu mountains and Nanyang Basin
- II<sub>1</sub>(5) Cinnamon soil, brown earth and skeletal cinnamon soil region of north China mountains
- II<sub>1</sub>(6) Fluvo-aquic soil, cumulative cinnamon soil and cinnamon soil region of the Fen and Wei River valleys
- II<sub>1</sub>(7) Loessal soil and dark loessal soil region of loessal plateau

II<sub>2</sub> Dark brown earth, phaeozem and chernozem zone

- II<sub>2</sub>(1) Dark brown earth, dark meadow soil and planosol region of Changbai Mountain
- II<sub>2</sub>(2) Dark brown earth and phaeozem region of the Hinggan Mountains

[Continuation of TURANG XUEBAO No 2, 1922 pp 97-109]

- II<sub>2</sub>(3) Dark meadow soil, planosol and bog soil region of three river plain
- II<sub>2</sub>(4) Phaeozem and planosol region of the eastern Songhua and Liao River plain
- II<sub>2</sub>(5) Irrigated cumulative soil and aeolian soil region of the upper Liao River plain
- II<sub>2</sub>(6) Chernozem and dark meadow soil region of the western Songhua and Liao River plain
- II<sub>2</sub>(7) Chernozem and dark chestnut soil region of the western Da Hingan Mountains

II, Podsollic soil zone of the northern Da Hingan mountains

III Arid great soil region

III<sub>1</sub> Kastanozem-brown pedocal and sierozem zone

- III<sub>1</sub>(1) Kastanozem, saline-alkaline soil and aeolian arenosol region of Nei Mongol Plateau
- III<sub>1</sub>(2) Brown pedocal, kastanozem and gray cinnamon soil region of the Daqing and Helan Mountains
- III<sub>1</sub>(3) Irrigated cumulative soil and saline-alkaline soil region of the central Yellow River irrigated land
- III<sub>1</sub>(4) Aeolian arenosol, kastanozem and brown pedocal region of the Ju Meng Plateau

[Continuation of TURANG XUEBAO No 2, 1982 pp 97-109]

- III<sub>1</sub>(5) Brown pedocal region of western Mongolian plateau
- III<sub>1</sub>(6) Sierozem and loessal soil region of western loessal plateau
- III<sub>1</sub>(7) Sierozem and kastanozem region of eastern Qinghai Plateau

III<sub>2</sub> Gray brown desert soil zone

- III<sub>2</sub>(1) Gray brown desert soil and aeolian arenosol region of Alxa Plateau
- III<sub>2</sub>(2) Aeolian arenosol, gray desert soil and gray brown desert soil region of Junggar Basin
- III<sub>2</sub>(3) Sierozem, gray desert soil, irrigated cumulative soil and solonchak region of piedmont of the northern Tianshan Mountains and Yining Basin
- III<sub>2</sub>(4) Gray forest soil and subalpine soil region of the Altay Mountains
- III<sub>2</sub>(5) Gray cinnamon soil, subalpine soil and brown pedocal region of the Tianshan Mountains

III<sub>3</sub> Brown desert soil zone

- III<sub>3</sub>(1) Brown desert soil and irrigated cumulative soil region of Hexi corridor
- III<sub>3</sub>(2) Alpine meadow soil, brown desert soil and solonchak region of the Qilian Mountains and Qaidam Basin

- III<sub>3</sub>(3) Brown desert soil and aeolian arenosol region of Tarim Basin
- III<sub>3</sub>(4) Irrigated cumulative soil, brown desert soil and solonchak region of periphery of Tarim Basin

IV Alpine great soil region

IV<sub>1</sub> Subalpine meadow soil zone

IV<sub>1</sub>(1) Subalpine soil and bog soil region of Songpan-Markam Plateau

IV<sub>1</sub>(2) Subalpine soil and mountain shrubby soil region of Garze-Qamdo

IV<sub>2</sub> Subalpine steppe soil zone

IV<sub>2</sub>(1) Mountain shrubby soil region of the Yarlung Zangbo valley

IV<sub>2</sub>(2) Subalpine soil region of northern slope of the Himalaya Mountains

IV<sub>2</sub>(3) Subalpine soil region of western Himalaya Mountains

IV<sub>3</sub> Alpine meadow soil zone

IV<sub>4</sub> Alpine steppe soil zone

IV<sub>5</sub> Alpine desert soil zone

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TITLE: "The Agro-ecological Characteristics and Regionalization of the Tai Lake Region"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, 1982 pp 110-121

TEXT OF ENGLISH ABSTRACT: The Tai Lake region, lying on the Changjiang and Qiantang delta at the juncture of the north and central subtropics, is an independent agro-ecological region. Through thousands of years of human activities of agricultural practice, this region started from its ecological stage of soil swamping, through the stages of polder farming, cropping of rice and wheat, to a stage of coexisting multiple systems of agriculture, forestry, fisheries and sericulture. An efficient and functional agro-ecological system with stable structure and high resistibility to natural calamities has been formed, which has led to the region's being developed to become one of the most notable integrated agricultural bases in China.

In recent years, a triple cropping system has been adopted extensively regardless of the local conditions, which has resulted in deterioration of soil environment and its

[Continuation of TURANG XUEBAO No 2, 1982 pp 110-121]

fertility. In order to improve this situation, it is necessary to study agro-ecological regionalization of this region. Based on a preliminary investigation in the Tai Lake Basin, four ecological regions are divided as follows:

1. The low mountain and hill region: Topographically, hills and mountains are predominant in the region with diversity of soil types. Side bleached paddy soil is predominant in the region. The fertility level of the soil in the region is closely related to its relief and irrigation conditions. Land utilization should be in accordance with the actual conditions. On the steeper hilly slopes with a thin soil layer, forestation should be the only method of land utilization. On the terraced fields with insufficient irrigation, a cropping system of rice-upland crops should be adopted, while on the paddy fields with good irrigation conditions a cropping system of rice-rice-winter crops may be the best pattern. Only on the fields nearby the villages or in open valleys can double cropping of rice or a triple cropping system of rice-rice winter crops be adopted, however, green manure crops should be arranged in the rotation system so as to maintain the soil fertility.

2. The Tai Lake plain region: This region is mainly located on the plain with a few low mountains and hills. Paddy fields are predominant. With plenty of ponds, lakes, streams and rivers, as well as mulberry groves and orchards, this region is known as a base of rice cultivation, fisheries and sericulture.

[Continuation of TURANG XUEBAO No 2, 1982 pp 110-121]

Although most parts of the region are plains, it is undulating in relief, and the topographical variation together with the difference in water regime, soil type, soil fertility and labor force constitutes the special natural and economic conditions of the region. Stagnating paddy soil is widespread in the region, so the cropping system of rice-wheat should be the main rotation system in combination with a proper proportion of a triple cropping system, while in the area occupied mainly by permeable paddy soil, the proportion of the triple cropping system may be greater.

3. The alluvial plain region: This region includes the alluvial plains along the Changjiang and Qiantang rivers. Percolating paddy soil suitable for the cropping system of rice-wheat-cotton is the major soil.

This ecological region is a production base of cotton, oil crops and cereals. Most of the soils are lower in fertility and sandy in texture. The rotation of rice and upland crops must rationally be arranged in accordance with the local conditions. In order to get high yield of cereal and cotton, it is recommended that green manure crops be grown or interplanted in the rotation system to improve soil fertility, and the triple cropping system should not take up too great a proportion so as to ensure the high production of cotton. At the same time, comprehensive development of forestry, fisheries and sideline productions should also be taken into account.

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4. Depression and polder land region: Through the long period of human activities, polder fields have been built on the depression area in this region. Crisscrossed by canals and rivers, this region has average elevation less than 4 meters above sea level. Waterlogged paddy soil is the predominant soil, and uplands heaped up by human activities are scattered over the region.

With the difference in microrelief, notable variation in fertility of paddy soils can be found in the region. Due to the development of the drainage system, part of the waterlogged paddy fields with one yield of rice annually has been replaced by the rotation of a double yield of rice and wheat.

However, the surface gleyization of soil is getting stronger because a triple cropping system of rice-rice-wheat is unduly adopted. For this reason, the adoption of a cropping system of double rice or a triple cropping system should be limited to the higher field with good drainage conditions.

The ecological conditions of this region are favorable for integrated development of agriculture and other industries. The mulberry or tangerine groves in combination with fishery pools have been developed in parts of the region, which is a very good system favorable for ecological cycling.

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TITLE: "Studies on the Fate of Nitrogen Fertilizer. 1. The Fate of Nitrogen Fertilizer in Paddy Soils"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, 1982  
pp 122-130

TEXT OF ENGLISH ABSTRACT. In both calcareous and noncalcareous paddy soils, the fate of urea, ammonium sulfate and ammonium bicarbonate was investigated in micro-plot experiments laid out in the rice fields using the  $^{15}\text{N}$  tracer technique. The results obtained showed that when the N-fertilizers were surface-broadcasted as basal dressing, the recovery of ammonium bicarbonate was the lowest, while the N-loss was the greatest. The balance sheets of urea-N in the strongly calcareous, slightly acid and strongly acid paddy soils showed that the recoveries in rice plants were 22.3 percent, 27.5 percent and 39.8 percent, the N retained in soils was 30.4 percent, 18.6 percent and 16.4 percent, and the N deficits were 47.3 percent, 53.9 percent and 43.8 percent, respectively. In the two noncalcareous paddy soils, the recovery of ammonium sulfate amounted to 30.1 percent and 58.7 percent, but in a calcareous paddy soil it decreased to 22.5 percent. Obviously, the nitrogen loss through ammonia volatilization in the calcareous paddy soil may play



[Continuation of TURANG XUEBAO No 2, 1982 pp 122-130]

an important role in addition to denitrification. The deep-dressing of granulated urea and ammonium bicarbonate was the most effective method for the application of N-fertilizers. In addition, experiments also revealed that N-fertilizer top-dressed at the middle stage of rice growth gave a high recovery of about 60 percent by the rice plant. Experiments also showed that the loss of fertilizer nitrogen was not significantly affected either by temporary drainage at the vigorous tillering stage or by the application of nitrification inhibitor (CP).

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TITLE: "On the Silicon Supplying Capacity of Paddy Soils in South China"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 2, 1982 pp 131-140

TEXT OF ENGLISH ABSTRACT: This article deals with the silicon supplying capacity of paddy soils in south China.

1. The content of  $\text{SiO}_2$  in the surface soil extracted by HAc-NaAc (pH 4) for soils with a 5 percent increase of rice yield due to application of Si-fertilizer was generally less than 9.5 mg per 100 g soil. For soils with more than 5 percent increase in rice yield due to application of Si-fertilizer, the critical percentage of  $\text{SiO}_2$  in straw was usually less than 10 percent (at the ripe stage).

2. The Si-supplying capacity of paddy soils in south China is divided into three types:

The first type is the soil with a low level of Si-supplying capacity. The average available  $\text{SiO}_2$  in soil of this type is less than 8 mg, and the  $\text{SiO}_2$  in rice straw is about 8.5 percent. Application of Si-fertilizer to rice plants on soils of this type may give more than 5 percent increase in yield. This type includes paddy soils derived from granite, red sandstone and the Quaternary red clay occurring on the second terrace of the rolling hills.

The second type is the soil with a medium level of Si-supplying capacity. The available  $\text{SiO}_2$  amounts to 12 mg, while the  $\text{SiO}_2$  in plant straw is about 11 percent. The paddy soils derived from the Quaternary red clay occurring on the lower slope and valleys of hilly land belong to this type. When they are heavily dressed with nitrogen fertilizer, Si-fertilizer might give a yield increase.

The third type is the paddy soil with a high level of Si-supplying capacity. This type includes the paddy soils developed on lateritic soils of basalt origin, and those derived from lacustrine deposits and alluvial deposits of the delta regions. Generally the rice plant does not respond in yield to Si-fertilizer on soils of this type.

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TITLE: "Status of Potassium Supply of Peaty Soil of Paddies in Jilin Province and the Effect of K-Fertilizer"

SOURCE: Beijing TURAN XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese Vol 19 No 2, May 82 pp 202-208

ABSTRACT: Paddy peaty soil is distributed mainly in the river plains and mountain ravines of the cold Temperate Zone of the Northeast, a low yield soil formed by cultivation of paddy rice in the reclaimed ash soil or muck soil. About 2.32 million mu of such paddies are reported in Jilin Province, and 1.06 million mu are in Yanbian Prefecture. Some of these paddies have been used to cultivate rice for 120 years. The yield is generally 300 jin/mu. Problems of stunted seedlings, black withering disease, etc. occur every year. A research project was established in 1976 to study techniques of potassium deficiency diagnosis and potassium fertilizer application for the purpose of resolving the problems of peaty soil all over the province. Analysis reveals that the active potassium content of the topsoil of such

[continuation of TURAN XUEBAO Vol 19 No 2, 1982 pp 202-208]

paddies is only 4.7-8.6, amounting to 1/5 of that of river silt soil. Experimental application of potassium fertilizer (potassium chloride) produces yield increases of 6.7-123 percent. Analysis of the rice plants during various stages of the growth and development period reveals that the low yield condition is not obviously related to the nitrogen and phosphorus nutrition condition. The physiological disorder of the rice plant induced by ferrous is also mild compared with the disorder induced by potassium deficiency. Application of 14-21 jin/mu of potassium fertilizer, especially during the jointing stage when the rice plant is most sensitive to potassium nutrition is recommended.

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## Water Conservation

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TITLE: "Economical Use of Water in the Cities"

SOURCE: Beijing ZHONGGUO SHUILI [WATER CONSERVANCY IN CHINA] in Chinese No 2, 1982 pp 4-6

ABSTRACT: Since the liberation, the city water supply in China, including separate water supply systems of industries, mines, and enterprises, has increased 20-fold compared with the supply level of 1949, yet many cities of the country still have a water shortage problem of various degrees. The problem is especially acute in the northern cities, such as Beijing, Tianjin, Dalian, Qingdao, Handan, etc. The continuous drought year after year in Beijing and Tianjin has made the problem extremely intense. The Miyun Reservoir can no longer deliver water to Tianjin and water is now brought in from Huanghe, several hundred km away. This paper explains that the problem of water shortage cannot be resolved by simply finding new source of supply. Industrial use of water amounts to about half of the consumption and a great deal of it is wasted. Ways must be found for industries to use the water repeatedly. At present, only 10 percent of the plants in the country are doing so. Public facilities, such as government offices, schools, etc. must check and repair the plumbing system to stop all leakage. Unified management of a city's water supply and wastewater disposal is also necessary for promoting effective control.

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TITLE: "Fully Utilize the Water Resource of Huanghe To Serve the Economic Construction of the North"

SOURCE: Beijing ZHONGGUO SHUILI [WATER CONSERVANCY IN CHINA] in Chinese No 2, 1982 pp 5-7

ABSTRACT: The water resource of Huanghe is not very rich but the river is very long. The average annual flow volume at Huayuankou Station is 56,000 million m<sup>3</sup>, amounting to 40 percent of the total of the 3 rivers of Huanghe, Huaihe, and Haihe. According to actual measurement data, in a low year the flow volume of that station is at least 40,000 million m<sup>3</sup>. Since the liberation, 7 large water conservancy stations have been completed on the main channel of Huanghe, with 138 reservoirs of all sizes. The effective irrigated acreage has been increased from 12 million mu to nearly 30 million mu. In the 10 years since 1972, the flow of Huanghe stopped in the low water stage of 7 years. This is not due to insufficient supply at the source, however. It is mainly due to the imbalance of distribution of rainfall and insufficient regulating capacity of reservoirs. In the near future, the paper suggests that economical use of irrigation water and construction of middle and lower reach control type projects are necessary. In the long run, the problem of transferring water of the south to the north must be seriously studied.

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TITLE: "Benefit of Water Conservancy Investments and Ways of Improving the Economic Benefits"

SOURCE: Beijing ZHONGGUO SHUILI [WATER CONSERVANCY IN CHINA] in Chinese No 2, 1982 pp 16-20

ABSTRACT: From 1950 to 1979, the total investment in water conservancy, including administrative expenditure, is 78.9 billion yuan. About 60 percent of the capital is used directly to serve agriculture, with 55 percent for irrigation and 5 percent for drainage, and only 3 percent for power generation. The sum is mainly allocated by the state, with a portion of it raised by local jurisdictions. The history of capital investment in water conservancy projects and some problem of waste, about 4-10 percent, are reviewed. The indirect waste must also include the destruction of forest coverage, especially at the sources of streams, unreasonable construction projects of dikes, fields, etc. to block the flow of streams, the random enclosure of lakes to enlarge the cropland, and the increasing severity of water pollution. These problems and the large number of disputes concerning the uses of water are mainly caused by the lack of centralized authority in matters of developing water resources. A series of measures are suggested to resolve these problems so as to improve the economic benefits of water conservancy investments.

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TITLE: "General Condition of Flood Prevention in 1981"

SOURCE: Beijing ZHONGGUO SHUILI [WATER CONSERVANCY IN CHINA] in Chinese No 2, 1982 pp 38-41

ABSTRACT: The special characteristic of the year 1981 was flooding in the west and drought in the east. In the lower Changjiang Valley, the rainfall in Jun is 30-60 percent less than a normal year. The drought condition is only casually mentioned, however. The bulk of the paper is devoted to descriptions of the rainstorms, floodwater, and typhoons in the upper reaches of Changjiang, the upper reaches of Hanjiang and Huaihe, the southern part of Liaoning, the Sanjiang Plain of Heilongjiang Province, the Zhujiang Valley, and the upper reaches of Huanghe. Damages from floods in various parts of the country are also reported. Finally, the paper summarizes briefly the lessons learned from the experience of fighting the floods of 1981.

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TITLE: "The Genesis, Damage, and Control of the July 1981 Flood of Sichuan"

SOURCE: HAN SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
In Chinese No 3, Apr 82 pp 3-10

ABSTRACT: This issue of the journal is devoted entirely to a collection of papers which summarize scientifically the extraordinarily large flood of 1981 in Sichuan. From late Jun to the middle of Sep, the weather of the province was abnormal. According to the data of hydrological and meteorological departments, the temperature of the basin had been high, the vapor was abundant, the barometric pressure was low, and the atmosphere was in an unstable state just when the circulation above the Eurasian continent began to change to cause the southwestern high altitude vortex to spread into Sichuan and to encounter, later, the cold air invading Sichuan from the northwest. A localized vertical movement was thus created to bring the warm and moist air from near the ground surface upward to come to contact with the high altitude air mass and to condense quickly into torrential rains, more than 100 mm in an area of 1500 km<sup>2</sup> and more than 50 mm in an area of 6000 km<sup>2</sup>. The rain of the storm center, Weiyuan County, was 157 mm. In recent years, Sichuan had been suffering from continuous and severe droughts, the areas of distribution of which were very

[Continuation of SHUITU BAOCHI TONGBAO No 2, 1982 pp 3-10]

similar to those of the rainstorms of Jul 81. According to statistics of the various affected regions, the total direct loss from the rainstorms amounted to more than 1 billion yuan. The industries, agriculture, transportation, and mining were in great danger and the entire national economy was threatened. As the aftermath of the rainstorms is being studied, the most serious damage is the washout of the top soil, which is estimated at one hundred billion m<sup>3</sup>. This loss has caused the soil of the affected areas to become very thin, and its fertility and drought-resistance are irreversibly reduced. The paper devotes the second half to discussions of the action and significance of water and soil conservation measures, such as forest protection and afforestation, and the prevention and control of flood damages.

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TITLE: "Relationship Between the Sichuan Flood and the Geological Background"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 30-36

ABSTRACT: Information of related departments reveals that in the past 500 years, there have been 132 floods in the valleys of Jialingjiang, Peijiang, and Tuojiang and 17 of these were severe. One of the major reasons for the increasing severity of flood damages is the serious destruction of forest cover to cause grave ecological imbalance. The forest coverage has been reduced from the above 19 percent of the 50's to below 10 percent in Sichuan, and to less than 1 percent in a few counties. Such complex factors as the crust movement, the geotectonic framework, the fold structures, the neotectonic movement, the special action of the lithological characteristic, and the variations of geomorphology are briefly stated. When these geological and geographical conditions are combined with the human activities of logging, farming, and construction and the natural phenomenon of rainstorms, landslides, mud-rock flows, ground fissures, and hillside collapses will occur to destroy engineer structures and to cause giant losses of lives and property. Although the flood calamities have the specially heavy rainstorms as the direct inducedment because they raise the water table and increase the movement of subterranean water, the other factors form the background to create the disastrous losses.

AUTHOR: None

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TITLE: "Protecting Environmental Resources to Develop Local Advantages"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 35-39, 29

ABSTRACT: The flood disaster of 1981 in Sichuan occurred mainly in the 200,000 km<sup>2</sup> of river valleys, where the population is dense, the transportation is convenient, the soils are fertile, and the production is rich. This paper attempts to explain why the flood disaster should be concentrated in this area to cause such severe damages. The answer is mainly that human activities have destroyed the environmental and natural resources to cause an ecological imbalance and to weaken the adversity resistance of the land. The paper urges that this painful experience must be summarized and the lesson learned. There should be an all out effort to afforest to increase the rate of vegetative coverage, to use engineering structures to reduce the force of floodwater, to harness and manage the rivers and streams, and to protect the environmental resources so that this very rich region may be reasonably developed and continuously utilized.



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TITLE: "The Genesis, Forecasting, Prevention, and Control of Landslide Caused by the Rainstorms in Sichuan"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 11-17

ABSTRACT: The continuous rainstorms of 1981 in Sichuan caused landslides in 60,000 places of 90+ counties all over the province. More than 300 persons were killed, 74,000 rooms of houses collapsed, and 60,000 persons were made homeless. The mountains of Sichuan are lithologically soft and weak and compounded with the human factors of constructing fields on the slopes and of destroying the forest cover, landslides occur very easily during heavy rainstorms such as those of Jul 81. The paper compares landslides with earthquakes and suggests ways of predicting their occurrence. Prevention and control take a long time. Of the 570,000 km<sup>2</sup> of land in Sichuan, 70 percent are mountainous. The basic prevention and control work depends upon the emphasis of scientific education of the local people so that the work of landslide prevention may be carried out persistently and scientifically in order to produce lasting effects.

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TITLE: "A Preliminary Analysis of the Mud-rock Flow Damage in Sichuan and Its Development Tendency"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 18-25

ABSTRACT: In 1981, mud-rock flows were very active in Sichuan and their damages very severe. The distribution, the general history, the damage, and the principle of occurrence of mud-rock flows in the province are described, with tables and a map to demonstrate the extent of mud-rock flow activities in the various counties. In the 30 years of 1950-79, mud-rock flows caused by human actions, such as logging of forests, quarrying, mining minerals, building power stations, highways, and railways, as well as dikes, reservoirs, etc. have become much more frequent in an extent unseen before the 50's. And, they are becoming even more frequent and more damaging in the 70's. On the average, they now occur in cycles of about every 5 years.



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TITLE: "Protect Soil Resources so Mankind Can Eat"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 40-45

ABSTRACT: The current conditions of destruction of soil resources in Sichuan are described in terms of soil erosion, soil degeneration, soil pollution, and the diminishing situation of cropland (at a rate of 696.3 thousand mu per year, on the average.) In order that mankind will have food to eat (the sustained cropland reduction in the USA and England is made a part of discussion) the soil resources of Sichuan should be urgently protected. The paper suggests that soil and water conservation, the control of soil degeneration, an increase of application of organic fertilizer to improve soil fertility, and the improved management of the river terraces where the greatest damage occurred in the flood of Jul 81 are matters demanding immediate attention if the rich resources of Sichuan basin are to produce any more food.

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TITLE: "Take Care of Slope Cropland, Control Water and Soil Losses, to Promote Agricultural Production [in Sichuan]"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 46-50

ABSTRACT: In the 3 months of Jul-Sep 81, the Sichuan Province suffered several disastrous rainstorms and floods and 12 million mu of cropland had been washed out. Of these 2.2 million mu were destroyed; more than 400,000 mu were turned in to piles of rubble, difficult to be used to cultivate anything in the near future. The major reason of this calamity is the changes of atmospheric circulation, but after examination, the authors are profoundly aware that in the province, too little slope cropland was taken care of too slowly by too poor a quality of work. The ability of the region to resist natural calamities was very weak. The fact that the losses from this flood disaster were not successfully cut to a minimum is a bitter lesson. In Sichuan, there has been more than 20 years of experience of constructing and reconstructing the slope land. It is just that the determination was not great enough, there were attempts to do too much too fast, and the quality of the work was not sufficiently high. The paper summarizes the shortcomings of past jobs and suggests new ways of taking care of the cropland on the slopes.

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TITLE: "All Out Effort to Restore Vegetation to Safeguard the Ecological Equilibrium"

SOURCE: Xian SHUITU BAOCHI TONGBAO [BULLETIN OF SOIL AND WATER CONSERVATION]  
in Chinese No 2, Apr 82 pp 51-57

ABSTRACT: Judging from the conditions in Sichuan, the increasing frequency of occurrence of such disasters as drought, flood, wind, and pests in such special severity as the summer flood of 81 is inseparable from the serious destruction of the vegetative cover. From the viewpoint of ecological equilibrium, the destruction of vegetation has brought about the following: (1) The lack of forests causes a reduction of moisture and leads to drought. (2) Without trees to slow down the runoff and to store water in the layer of fallen leaves, the ground surface is unprotected against torrential rains to result in serious losses of soil and water. (3) The losses of such forest animal, plant, and pharmaceutical resources are difficult to restore. The paper divides the province into 5 regions: the western highland, the western alpine and ravines, the southwestern river valleys, the marginal basin land, and the interior of the basin. Measures to restore the vegetation in each of these regions are suggested.

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